



Welcome to the expo: There's much to learn about us and our work in the meat sector

WORD FROM THE CEO



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We are delighted as an organisation to play a strategic role in the ideation, conceptualisation and organisation of this first-ever Kenyan Meat Expo. This is a dream come true for us, that has been realised by lots of labouring, planning and collaboration with sector stakeholders and our other strategic partners.

As Kenya Markets Trust, we pride ourselves in our transformative work that has led to the improvement of livelihoods of Kenyans across different value chains in the country.

To date, over one million Kenyans have seen an improvement in their livelihoods due to the work we have undertaken in the agricultural inputs, livestock and water sectors, which are our cores areas of focus.

My hope is that through the information in this publication and testimonials of our engagements, you will catch a glimpse into the spirit of our work and appreciate the contribution that our amazing team is doing to make Kenya a better place for all of us.

Further, I invite you to the Expo where you can learn more about our work and the meat sector in general, as I believe that we are all stakeholders in it – whether as producers, processors, traders, businessmen or consumers of meat and meat products. There is something for everyone at the Expo.

Meat quality and safety: How adoption of improved standards opens doors of profitability and job creation

Background

Meat is one of the oldest traded commodities in the world. In Kenya, it is a widespread delicacy.

In ordinary traditional settings in Kenya, livestock keeping is cultural and for subsistence. It is also a measure of wealth and a medium for marriage transactions. However, with increasing urbanisation and civilisation, livestock rearing is widely commercialised today.

The growing demand for meat and increased sophistication of consumer preferences has changed the outlook of the meat industry. Rigorous breeding programmes aimed at achieving high feed conversion abilities over shortened periods of time to feed meat-thirsty populations are here with us. More slaughterhouses and abattoirs have come up.

But the emergence of roadside chicken slaughter and processing stations, especially in high population settlements and extremely busy cattle abattoirs, have introduced a modern food safety threat into the food chain. In many of these places, personal and premise cleanliness is seldom observed, often owing to the reality that slaughterhouses require volumes of water – a scarce resource – to maintain the required hygiene standards.

To slaughter a goat in a commercial slaughterhouse, one requires at least 20 litres of water, 10 litres for poultry and 100 litres for a cow. In view of this, a majority compromise hygiene, allowing pathogens into meat, which happens to be a good medium for harmful organisms to thrive if the handling is not hygienic.

Safeguards

There are elaborate laws in Kenya to safeguard consumers. The Meat Control Act regulates how livestock is slaughtered, inspected for human consumption, and

how meat is transported. The regulations even dictate that no meat should leave the abattoir when hot and freshly slaughtered. Meat should be chilled to achieve core temperatures of 8-16 degrees centigrade. This allows it to settle and lower its pH from 6.8 to 5.4, thus creating an acidic environment that fights harmful micro-organisms.

There are other private sector standards such as HACCP and ISO, which stipulate even more stringent hygiene measures to ensure safety of meat products. These are globally accepted standards.

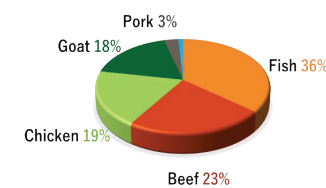
Meat retail outlook

A majority of meat retailers in Kenya hang or place carcasses in non-temperature controlled cubicles or display glass. Common meat retail players include the estate butcheries, supermarkets and hotels. Kenya's per capita meat consumption is estimated at 14kgs, against a global average of 31.6kgs and Africa's average of 25.1kgs. Arid and semi-arid regions produce about 80 percent of the country's meat basket.

Most meat retail outlets operate under minimal stocks for the day and add little or no value addition. The common practice is where walk-in customers ask for good meat and a unit of measure. Thus, it is said that in Kenya, we do not have meat butchers but meat cutters. The story is changing though, with the entry of modern supermarket butcheries and upgraded estate outlets, that are now differentiating meat into specific cuts for different recipes.

The most preferred meat type, according to a KMT report, is fish, followed by beef, chicken, goat. Pork is the least popular.

Sadly, with lack of consumer information on differentiated meat cuts especial-



ly with the red meat, you find a consumer who buys beef fillet and cubes for stewing, or gets T-Bone steak for boiling. Even worse, an Ossobuco, which is best boiled, is sometimes cut into cubes and fried.

Lack of adequate infrastructure and skills to enable meat retailers in the informal meat retail channels discourages any meaningful meat value addition. Poor hygiene standards and practices in a majority of hot chain butcheries results in high losses due to inefficiencies in operating costs, associated with stock management and low value addition.

Investments in a proper cold chain and hygiene and food safety standards should be pursued. It creates more money by enabling value addition and differentiation, reducing wastages, enabling creation of more valuable products with increased shelf life, as well as improved consumer confidence and traceability.

Kenya Markets Trust (KMT) identifies this as a leverage point towards catalysing growth in the meat market systems.

In the last seven years, KMT has supported Neema Slaughterhouse to implement the HACCP standard. Today, Neema Slaughterhouse is a market leader that attracts export markets. It became the first HACCP-certified community-owned local abattoir in East and Central Africa. Neema Slaughterhouse brags to serve seven export markets, mainly in the UAE. It also has slaughter contracts for butcheries that value their customers and their business by keeping high hygiene standards.

Modernisation of butcheries

Estate butcheries that have witnessed the transformation of the meat sub-sector on safety standards and have seen value are continually investing in modernising their facilities.

Presently, Kenya Markets Trust and GIZ's Business Scouts for Development programme commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, are currently partnering in further developing the meat processing sub-sector through a pilot one-year programme, that will see meat companies in Kenya benefit from improved technologies, expert handholding, and new technologies. We jointly believe that the infusion of world-class technical expertise and technologies will drive innovation and improve the competitiveness of the meat processing sub-sector, leading to a healthier population, job creation and securing incomes and livelihoods of many households.

The Dagoreti slaughterhouses – a complex of a number of local abattoirs – have not been left behind. They have been investing in educating their staff on hygiene and safety standards, in cold rooms/chillers and in modernised meat transport carriers.

The media has also played a role in driving consumer education and awareness around meat safety and quality, thus promoting and creating demand for more hygienically handled products.

Investment in a modern butchery would cost between Ksh4-6 million. Such an investment will enable minimum profit margins of 30-40 percent from meat cuts and about 70 percent margins from value added products.

Improving market systems for the benefit of all

In today's world, we witness the daily co-existence of the 'haves' and the 'have-nots'. There are enormous amounts of wealth and improvements in technology, economies and social lives, that people living a century or two ago would not comprehend. At the same time, poverty is present alongside this wealth and development.

A 2019 report by WHO and UNICEF shows that one in every three people globally does not have access to safe drinking water. The World Bank reports that about 10 percent of the world lives in extreme poverty of less than \$1.9 a day. These numbers are grossly skewed towards women and youth, especially those in sub-Saharan Africa. Further, FAO reported that over 800 million people faced hunger in 2020 worldwide, a situation worsened by the Covid-19 pandemic.

Everyone, including poor and marginalised people, need markets for their livelihoods. For example, a pastoralist from Wajir County keeps animals as a source of livelihood. Whenever he needs to pay school fees for his chil-

dren, buy food for his family, or raise finances to cater for medical needs, he quickly goes to the market with his animals and trades them for money.

Unfortunately, market systems are often inaccessible and expensive for certain value chain actors, and are heavily skewed towards the 'haves' in society. These markets may also be uncompetitive, informal and unable to meet the needs of the poor and marginalised effectively.

In his book, Development as Freedom, economist Amartya Sen of India argues that actual development is about expanding the fundamental freedoms of each individual. This, he says, extends to the market systems as the primary route through which humanity trades, interacts, socialises, and gets livelihoods.

Adam Smith, an 18th century Scottish economist and philosopher, had similar views. He saw the freedom of exchange and transaction as part of the basic freedoms that all people should have access to.

In the views of these two scholars, for real development to happen, mar-

ket systems must be inclusive and competitive, and should benefit all the players, including the poor and marginalised.

Kenya Markets Trust (KMT) is an innovative market leader in transformational market systems development. We focus on interventions that modify the incentives and behaviour of businesses and other market players to ensure lasting and large-scale beneficial change to all players of the value chain.

This approach presents a departure from the traditional view of development, where outsiders would prescribe and provide what they viewed was lacking in a specific context, to a more sustainable tactic involving working with existing market players to provide long-term systemic changes that are sustainable beyond the life of a project or organisation.

Since we began our work in 2011, close to 1.1 million households today have recorded improved livelihoods, and over 1.3 million are accessing new markets in the agricultural inputs, livestock and water sectors in Kenya.

Our Impact

Our work spans across all the 47 counties in Kenya where we work through key partnerships with businesses, representative bodies, governments and other relevant institutions in The Agri-Inputs Sector, The Livestock Sector and The Water Sector.



1,089,423

households with improved livelihoods

34

significant enabling policies, regulations, processes and informal rules have been influenced by KMT across its focal sectors

710

businesses have recorded improved performance

307,010

new jobs are estimated to have been created in wider economy due to sector growth

1,329,392

people are accessing new markets, services, products and information

GBP 238,589,275

increase in annual income/savings in selected sectors

GBP 50,639,744

value worth of investments has been leveraged



Demystifying myths about red meat

Myth 1: A good fat covering on meat is necessary for it to be of good eating quality

Many consumers have the perception that unless the meat has a good covering of fat, the meat does not have a good eating quality. Others feel that when the meat is being roasted and the fat does not drip into the fire, then the meat is not of good eating quality.

Flavour is one of the meat eating qualities discerned by consumers. But if one takes lean meat from different animal species and cooks them separately, one will not be able to tell from which species the meat came. On the other hand, if fats from different animal species are cooked separately, the species differences can easily be discerned. This is because the flavour precursors are fat soluble and cooking fat releases them, and one is able to detect the species from which the fats came.

There is enough fat in the intermuscular flesh, called marbling fat. It contains adequate flavour compounds for species aroma to be discerned when the meat is cooked. Thus, lean meat has enough flavour intensity necessarily for good quality meat. You do not always need a good fat covering to enjoy your favourite piece of meat.

Myth 2: You do not need animal source foods, a plant sources can provide the necessary nutritional requirements

Micronutrients are important. Of these are the amino acids, which are classified as either essential or non-essential.

Meat provides eight of the essential amino acids. Lysine is the limiting amino acid for man. Soy provides lysine, but other cereals like corn have tryptophan as a limiting amino acid.

While cereal can supply the essential amino acids, the protein from plants sources have low net protein utilisation, which is half that of protein from animal source foods.

The high net protein utilisation (0.7-0.8) makes animal source foods more nutrient dense than the plants source (0.4-0.5).

Vitamins are important micronutrients. Meats are a good source of these micronutrients. Of concern is Vitamin B12, which is only found in animal source foods and absent in plant foods sources. Vegetarians would need to be supplemented with this vitamin.

Vitamin B12 is found in both red and white meats. This vitamin

is essential for keeping the body's blood and nerve cells healthy, and helps in the production of DNA.

Myth 3: Consumption of red meats will cause lifestyle diseases

Lifestyle diseases are associated with the way people live. They include heart diseases, high blood pressure and cancer. Risk factors are mainly diet and inactivity. But these are not the only risk factors. Age, gender, race/ethnicity have also been found to be associated with cancer and cardiovascular diseases. These are non-modifiable, while diet and activity are.

Much literature linking red meats to cardiovascular diseases and cancer have done so when they consider consumption of total meats (unprocessed and processed meats). When the two are separated and unprocessed red meats are compared to processed red meats, evidence point to no increased risk of cardiovascular disease and related cardiovascular mortalities like stroke.

The association of red meats to cardiovascular disease is because of the nature of fats. Red meats have saturated fats and low in unsaturated fats. White meats are high in unsaturated fats. While chicken meat with the skin contains the same fat level as medium fat red meat (44 percent), removal of the skin reduces this fat to five percent. This level in white meat is not lower than the figure for lean red meat.

Saturated fats have been associated with increase in the low density lipoprotein cholesterol, which causes narrowing of blood vessels, with the resultant increase in blood pressure and heart disease. The fatty acids that have been linked with this are palmitic and stearic acids. While palmitic acid increases low density lipoprotein cholesterol, stearic seem to reduce this.

Linoleic acid and Linolenic acid (essential fatty acids) are transformed in the body to produce Omega-3 fatty acids that have an effect in reducing the low density lipoprotein cholesterol and reduce the risk to high blood pressure, and cardiovascular diseases. Red meats can contribute about 20 percent of the long chain omega-3 polyunsaturated fatty acids intake.

Meat is an essential source of highly available proteins and trimming off the fat reduces the level of saturated fatty acids.

Red meats, when part of a varied healthy diet, have no increased risk as they provided more nutritional benefits to the consumer.

Facts about meat that could improve how you consume it



Meat, the flesh and organs of animals – and this includes fishes and birds – is no doubt a popular delicacy, but many of us consume it without enough information that would help us appreciate it better.

A little bit of science will be useful.

After an animal is slaughtered, a number of chemical and biochemical reactions occur that convert muscles found in live animals to meat. This process takes about 12-24 hours in beef, but it is faster in pork and lamb.

In meat, there is a protein called myoglobin. This protein has similar functions like the one found in blood, called haemoglobin, which binds oxygen to become oxyhaemoglobin and takes it to the cells.

So, when an animal is slaughtered, and after a series of complex chain reactions, myoglobin combines with oxygen and forms a compound called oxymyoglobin, which is cherry red in colour. Meanwhile, myoglobin without oxygen is purplish.

The amount of myoglobin in meat principally determines the colour of that meat. Red meat, as mostly derived from four-legged animals, has more myoglobin than the white meat found in fish and birds. The amount of myoglobin in meat is determined by a number of factors like diet, species, age, activity of the muscles, among others.

Meat colour is the first quality attribute

the consumer interacts with and helps form the decision on whether to buy the meat or not.

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Myoglobin has three colour transitions, depending on circumstances: Cherry red in fresh meat when oxygen is present; brown when the meat has been on display for a while; and purplish when myoglobin has very low oxygen. The colour transitions can be observed in meat on display counters, but have no spoilage implications. The important message here is to help one determine if the meat they just bought was indeed meat of muscle!

Composition of meat

Meat contains proteins, carbohydrates (sugars), fats, minerals and vitamins and water. Protein content varies, but it averages

about 22 percent. The protein in meats is highly digestible, with net utilisation value of 0.7 to 0.8 compared to that of plant sources, such as from legumes, at 0.5 to 0.6.

Amino Acids are the building blocks of proteins. There are those that the body can synthesise, but others must be taken in the diet. The latter constitute the essential amino acids, while those the body can synthesise are regarded as non-essential.

Meats are a good source of both the essential (8) and non-essential amino acids (12) in appreciable amounts. They are a good source of important minerals too: Iron, copper, magnesium, zinc, selenium. They also contain vitamins in concentrations that meet the body's requirements. Both water and fat soluble vitamins are abundant. Worth noting is Vitamin B12, which is only available in animal-based foods and not present in plant foods.

Fats are the other components found in meats. Fats are classified as saturated (SFA) and polyunsaturated fats (PUFA). The amount of fats varies from 8-20 percent in the body. Fats act as energy depots and insulates organs like the heart and kidney from heat loss. Plant oils are also good sources of fatty acids found in animal fats.

In meats, carbohydrates are stored in the form of glycogen, while in the blood, energy takes the form of glucose. The water compartment in meat is the largest, taking about 70-75 percent.