

WORLD RED MEAT MARKETS and COMPLIANCE REQUIREMENTS

(GUIDELINES FOR RED MEAT INDUSTRY)

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1 Disclaimer

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2 Table of Abbreviations

Abbreviations	Particular
ASEAN	Association of South East Asian Nations
BRC	British Retail Consortium
BSE	Bovine Spongiform Encephalopathy (Mad Cow Disease)
CAC	Codex Alimentarius Commission
CAR	Central Asian Republics
ETI	Ethical Trading Initiative
EU	European Union
FAO	Food and Agriculture Organization
FMD	Foot and Mouth Disease
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
GHP	Good Hygienic Practices
GMP	Good Manufacturing Practices
HACCP	Hazard Analysis Critical Control Point
HACCP	Hazard Analysis and Critical Control Point
HS Code	Harmonized System Code
IFS	International Food Standards
ILO	International Labor Organization
ISO	International Standardization Organization
ISO	International Standards Organization
KSA	Kingdom of Saudi Arabia
MNFS & R	Ministry of National Food Security and Research (Pakistan)
NARC	National Agriculture Research Council (Pakistan)
NZ	New Zealand

OHSAS	Occupational Health and Safety Assessment Specification
OIE	World Organization for Animal Health
PFL	The Pure Food Laws
PMO	Product Marketing Organization
PRP	Pre-Requisite Program
PSQCA	Pakistan Standards and Quality Control Authority
RFID	Radio Frequency Identification Device
RTE	Ready to Eat
SA Intl.	Social Accountability International
SPS	Sanitary and Phyto-sanitary
SQF	Safe Quality Food
SSOP	Sanitation Standard Operating Procedure
UAE	United Arab Emirates
USA	United States of America
USDA	United States Department of Agriculture
WTO	World Trade Organization

3 Acknowledgement

Livestock is considered a central component in agricultural sector with the potential to accelerate economic development of Pakistan. Globally, demand for halal meat and meat products is increasing due to growing population, income level and food choices. Pakistan meat industry is vibrant and has seen rigorous developments during last decade to meet the increasing local as well as global demands. The industry has potential to grow owing to its natural livestock farming systems and consumer preference towards halal meat. The sector, if properly assisted and developed, has great potential to be a marked contributor towards income and employment generation.

SMEDA has prepared this report with the objective to evaluate and document economic and export potential of red meat sector. It has been prepared in consultation with numerous stakeholders and development experts including Punjab Halal Development Agency, Punjab Agriculture and Meat Company (PAMCO), All Pakistan Meat Exporters and Processors Association (APMEPA), University of Veterinary and Animal Sciences (UVAS), Sindh Agriculture University and Pir Mehr Ali Shah Arid Agriculture University, amongst others.

The report presents Pakistan's meat industry scenario, production trend, global trade as well as future potential with respect to modernization, processing, distribution and trade. The data presented is useful for meat producers, processors and people involved in export of Pakistani meat and meat based products.

5 Introduction to SMEDA

The Small and Medium Enterprises Development Authority (SMEDA) was established in October 1998 with an objective to provide fresh impetus to the economy through development of Small and Medium Enterprises (SMEs).

With a mission "to assist in employment generation and value addition to the national income, through development of the SME sector, by helping increase the number, scale and competitiveness of SMEs", SMEDA has carried out 'sectoral research' to identify policy, access to finance, business development services, strategic initiatives and institutional collaboration and networking initiatives.

Preparation and dissemination of this study in key areas of investment has been a successful hallmark of SME facilitation by SMEDA.

Concurrent to this study, a broad spectrum of business development services is also offered to the SMEs by SMEDA. These services include identification of experts and consultants and delivery of need based capacity building programs of different types in addition to business guidance through help desk services.

6 Purpose of the Document

The objective of this study is primarily to facilitate potential entrepreneurs in project identification for investment. The study may form the basis of an important investment decision and in order to serve this objective, the document/study covers various aspects of project concept development, start-up, and production, marketing, finance and business management.

The purpose of this document is to facilitate potential investors in red meat export by providing them a general understanding of the sector with the intention of supporting potential investors in crucial investment decisions.

The need to come up with this study reports for undocumented or minimally documented sectors attains greater imminence as the research that precedes such reports reveal certain thumb rules; best practices developed by existing enterprises by trial and error, and certain industrial norms that become a guiding source regarding various aspects of business set-up and its successful management.

Apart from carefully studying the whole document one must consider critical aspects provided later on, which form basis of any Investment Decision.

7 Red Meat Industry of Pakistan

7.1 Background

Pakistan is an agriculture-based economy and agriculture continues to be the largest sector and a dominant driving force for economic growth. It is a main source of livelihood for the rural population and ensures food availability to both rural and urban inhabitants. It is a key sector of the economy as it provides raw materials to main industrial units e.g. textile, sugar, leather, feed mills etc. of the country and also plays a major contribution in export earnings of the country.

Livestock sector is component of agriculture contributing 61.9 % to value added agriculture value addition and 14 % to GDP. It is relatively less volatile as compared to other agri subsectors. It does not depend on heavy mechanical, energy and other developed infrastructure. Being labour intensive and household in nature, it contributes in socioeconomic wellbeing of the rural population. Its share in agriculture is more than combined shares of cotton and wheat. More than 8 million rural families are engaged in livestock production, deriving around 35- 40 % of their income from this sector. Gross value addition of livestock has increased from Rs 5,269 billion (2020-21) to Rs 5,441 billion (2021-22) showing an increase of 3.26 % (Base Year 2015-16). This shows impressive growth on the trade front in the recent past. In totality, the overall performance of the sector still remains inefficient due to several supply side and regulatory constraints.

7.2 Red Meat Industry Structure

The red meat processing industry of Pakistan is primarily dependent on availability of indigenous raw material i.e. livestock including buffaloes, cows, sheep and goat. Keeping in mind the importance of livestock, the industry has created backward linkages with farmers, growers and allied vending industry for consistent supply of raw materials. Number of direct and indirect work force employed in meat production and processing industry has also considerably increased in last two decades. The red meat processing industry comprises of the following links;

i. Livestock Farming

Rearing of livestock such as large (buffaloes, cows, camels) and small (sheep and goats) ruminants

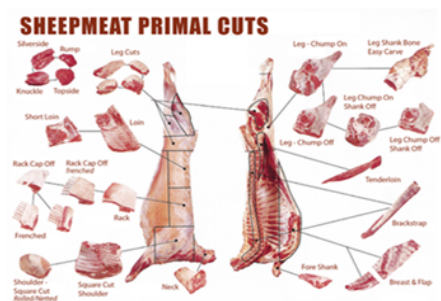
Figure 1: Livestock Sector in Pakistan



ii. Meat Processing

Slaughtering of animals and preparation of meat by products in modern abattoirs and meat processing units; extending the shelf life for market

Figure 2: Meat Processing



iii. *Marketing and Distribution*

Marketing is primarily done through promotion of fresh/processed meat products through branding, packaging, labeling, advertisement, public relations, trade exhibitions etc. Distribution includes wholesale; warehousing, transportation and logistics and retail; super market chains, store, restaurants, etc.

iv. *Export*

Beef and mutton in fresh, chilled or frozen form (carcass, boneless and with bone), edible meat offal (such as heart, kidneys, tongue etc.) and processed food commodities such as ready to cook and ready to eat meat items are exported to different countries.

Although, there are many types of meat produced in the world depending upon the availability of livestock, this document focuses on the ‘Red Meat’ segment in meat processing industry including buffaloes, cows, sheep, goats and camels only.

Figure 3: Premium meat cuts



7.3 Current Situation

Pakistan's meat processing industry is continuously growing due to the use of processed and hygienic meat becoming common and popular, especially in metropolitan cities. Due to this, the number of skilled and trained manpower employed is increasing rapidly. The size of the industry is fairly large and most of the processing units are based in or around the major cities and towns of the country. These processing units produce processed beef, mutton and other by-products such as edible offal. Presently, the meat processing industry consists of small to medium scale, well organized processing units, consisting of abattoirs and chillers supported by highly fragmented small to medium scale livestock farming.

Geographically, data indicates that meat processing and its related commercial activities are increasing in Punjab and Sindh as both provinces favor agro-based industry. In Punjab, the advantage lies in that the dairy industry on commercial lines is flourishing from where animals for meat are procured and Lahore is the center of meat processing industry. Sindh also has great potential as many processing units are established around Karachi.

Meat processing industry is directly dependent on the supply of livestock. Currently, livestock in Pakistan is raised in agricultural lands spread over an area of 263,000 sq. km. approximately; one fifth of this land is used as pasture land to raise animals. Although, in major production systems, the animals are raised mainly for milk production, whereby, procurement of meat is considered as a secondary activity, which in turn affects the supply position of meat products for meeting domestic and international demand. Livestock breeds for acquiring meat specifically are rarely developed.

The meat production and processing industry is also a source of raw material to auxiliary industries such as poultry feed by providing meat meal, blood meal, bone meal etc., detergent soaps and edible oil etc. besides providing valuable raw material to leather industry.

Population of livestock contributing to meat production is shown in the following table;

Table 1: Livestock Population in Pakistan, 2003-2021¹ (Million Heads)

Year	Buffaloes	Cattle	Goats	Sheep	Camels
2012-13	33.7	38.3	64.9	28.8	1.0
2013-14	34.6	39.7	66.6	29.1	1.0
2014-15	35.6	41.2	68.4	29.4	1.0
2015-16	36.6	42.8	70.3	29.8	1.0

¹ Derived from actual figures of Livestock Census 2006. From 2006-07 onward figures estimates are based on Inter census growth rate of Livestock Census 1996 & 2006 (Source: Ministry of National Food Security & Research)

2016-17	37.7	44.4	72.2	30.1	1.1
2017-18	38.8	46.1	74.1	30.5	1.1
2018-19	40.0	47.8	76.1	30.9	1.1
2019-20	41.2	49.6	78.2	31.2	1.1
2020-21	42.4	51.5	80.3	31.6	1.1
2021-22	43.7	53.4	82.5	31.9	1.1

The table has been represented graphically as below:

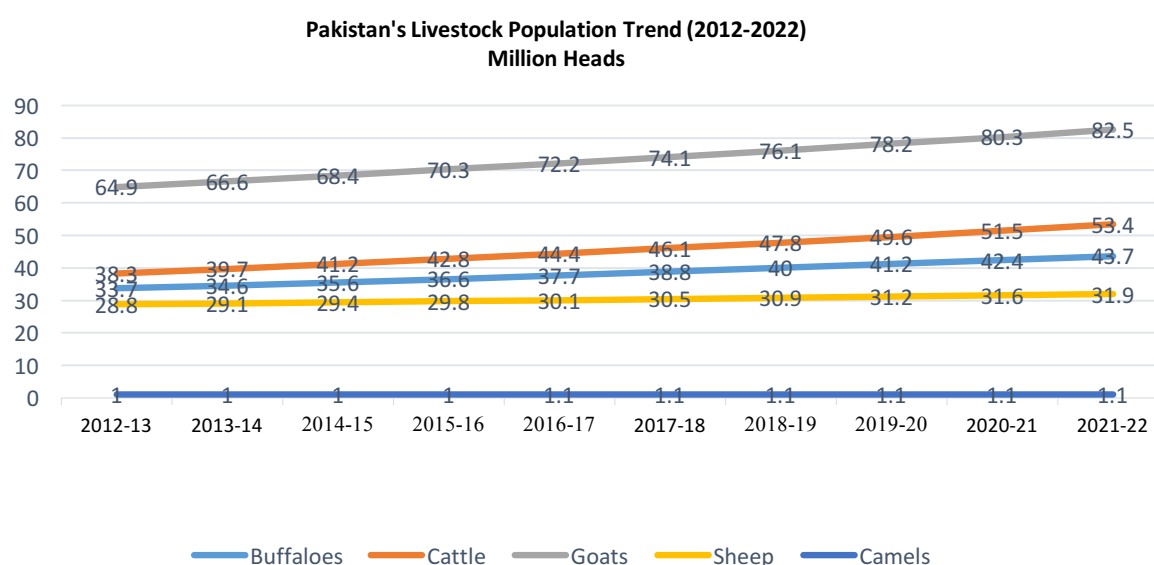


Figure 4: Pakistan's Livestock Population Trend (2012-2022)

Since Pakistan has not developed specific breeds meant primarily for meat production, the meat is procured primarily from the existing population mainly used for dairy farming.

The following table indicates percentage of animals slaughtered every year from existing population;

Table 2: Livestock Population and % slaughtered (2021-22)

Species	Population (Million Heads)	Animal Slaughtered / year (% of Species Population)
Cattle	53.4	10 %
Buffalo	43.7	15.5 %
Sheep	31.9	41.5 %
Goats	82.5	42 %
Camel	1.1	3 %

Slaughtered animals are either a result of culling or are raised for the purpose of Eid-ul-Azha as sacrificial animals. The slaughtered animals are producing millions of tons of meat every year with an upward trend in the previous ten years as shown in following graph;

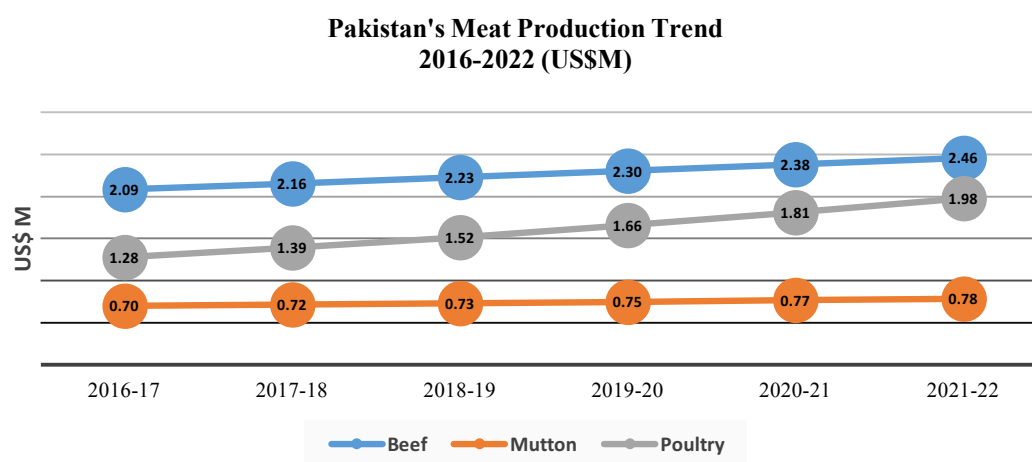


Figure 5: Pakistan's Red Meat Production Trend (2016-22)

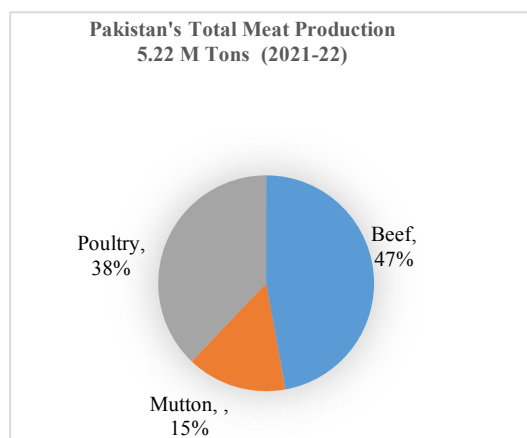
8 Red Meat Market

Pakistan produces large quantity of beef and mutton with total annual production estimated at 3.87 million tons which include 2.02 million tons of beef (52 %), 0.69 million tons of mutton (18 %) and 1.17 million tons of poultry meat (30 %) in year 2021-22.

Table 3: Total Meat Production in Pakistan 2013-2022 (Million Tons)

Description	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Beef	1.89	1.95	2.02	2.10	2.20	2.23	2.30	2.40	2.50
Mutton	0.66	0.67	0.69	0.70	0.72	0.73	0.75	0.77	0.79
Poultry	0.99	1.07	1.17	1.28	1.40	1.52	1.66	1.81	2.00
Total Meat ²	3.53	3.70	3.87	4.10	4.27	4.50	4.71	4.95	5.22

In 2021-22, Pakistan exported 88.91 thousand tons (2.4% of domestic meat production) meat valued US\$ 341 million, of which 80% is Beef fresh, 2% Beef frozen, 9% Mutton, 5 % Red meat edible offal, 3 % processed meat and 2% Poultry meat offal.³



In beef Figure 6: Pakistan's Red Meat Production

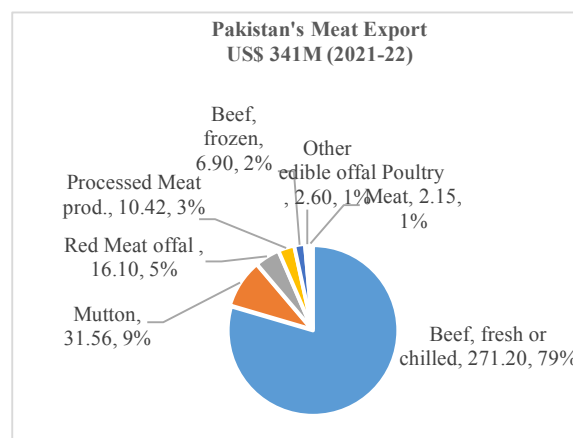


Figure 7: Pakistan's Red Meat Export

category, beef fresh, chilled is leading in terms of export followed by red meat edible offal, mutton

² The figures do not consist of edible offal.

³ Source: Trade Map

fresh, chilled or frozen, beef frozen and poultry meat and offal. The share of Pakistan's total red meat export is around one % in world market. Currently, Pakistan exports about 278 US\$ million worth of bovine meat mostly to GCC countries, Vietnam and Afghanistan. Around 80 % of Pakistan's beef exports were of in chilled carcass category which includes bone-in and de-boned bovine meat. Pakistan's exporters have leveraged the demand in the near markets for premium chilled meat which is sold in restaurants and retail stores. In contrast, the exports of the three largest meat exporting countries i.e. Australia, Brazil and India are in the frozen beef category and constitute 65, 86 and 90 % respectively of their meat exports respectively.

Frozen beef which is generally considered as lower quality and cheaper, has a longer shelf life and can be transported by sea to the far markets. This improves the marketability of the product and provides better returns due to cheaper transportation costs by sea, as opposed to by air cargo in the case of chilled meat. However, the appropriate processing capabilities and transportation cold chain is required to process frozen beef which is an extra investment. Furthermore, a competitive exchange rate is essential to ensure the ability to match competitor prices, since the frozen beef market is high volume and price sensitive.

Figures from last two decades show that beef remains the highest consumed form of meat, especially in rural areas; however, its quality is poor as it comes largely from culled dairy animals. Similarly, consumption of mutton has declined probably due to high prices as well as availability. Mutton and beef have a great potential to be the source of economic growth and income generation with small and medium livestock farmers as major beneficiaries. Pakistan has a comparative advantage in production of high value, traditional livestock farming especially sheep and goat raising. This potential is not being fully exploited especially at each level of meat production such as farm level, livestock markets, abattoirs, storage and transportation etc.

8.1 Traditional Meat Production & Processing

Livestock sector's prospective role towards rural economy can be well recognized from the fact that 35-40 million rural population is directly or indirectly dependent on livestock raising, having ownership of 2-3 cattle/buffalo and 5-6 sheep/goat per family which help them to derive 30-40 % of their income. It is estimated that livestock is raised by more than 8.5 million small and landless families in rural areas with a total herd of about 97 million cattle buffaloes and approximately 114 million sheep and goats as their main livelihood source.

Pakistan's red meat industry remains underutilized as large ruminants such as cows and buffaloes (usually male calves) are not provided quality feeding, particularly by subsistence farmers, which results in low quality of beef. As a result, exporters are unable to fully capitalize on advantages of the processed meat industry due to limitations of indigenous breeds and lack of corporate farming.

Livestock farming as a whole, from farm to markets remains unorganized due to subsistence conditions. Subsistence farmers do not have enough resources to adopt modern technologies, thus, feeding and farming methods are conventional and modern management practices are rarely followed.

In comparison, feedlot fattening aims at providing specialized protein-rich ration to animals for improved daily weight gains and quality of meat. The animals are kept in purpose-built sheds as per husbandry practices. Feedlot system is practiced preferably to raise the animals for sacrifice on the eve of Eid-ul-Azha. Costly fodders and fattening concentrates are fed to premium sacrificial animals to get highest possible daily weight gains and beauty so that they fetch good prices.



Figure 8: Commercial Feedlot Fattening Farm

With the increase in human population, farmers face problems such as decreasing area under fodder crops cultivation. Likewise, other problems include shortage of irrigation water, less and erratic rainfalls, barren rangelands, low priorities to fodder production and preservation. At present, the area under fodder production is approximately 3.35 million hectares out of total cropped area of 21.85 million hectares producing more than 60 million tons of fodder with average yield of 22 tons/ hectare. This production is not sufficient to meet maintenance requirements of the livestock causing malnutrition in animals. This is one of the reasons that productivity of livestock, despite their known genetic potential, continues to remain low.

Rabi and Kharif are two main fodder seasons. The major Rabi fodder crops are barseem, alfalfa, oat, mustard and barley. The major Kharif crops are maize, sorghum, millet, cowpeas, guar, sada bahar etc. Despite abundant production, there is always a shortage of green fodder between seasons as it is not available in sufficient quantities especially in extreme hot (June-July) and cold months (December-January) making animals under-fed. This shortage is met by wheat straw, which has limited nutritional value. Quality concentrates are not used efficiently. Straws of the cereals and other by-products are commonly used to overcome feed shortages. High energy and protein rich concentrates are considered expensive and thus avoided.

8.1.1 Important Livestock Breeds

Indigenous cattle also known as humped or zebu, belong mainly to following three types based on the purpose and performance. According to an estimate, about 15-20% of the cattle population is purebred, 5-10% crossbred or exotic while the rest 70-75% are non-descript animals. There is a negligible number of imported pure foreign breeds such as Holstein, Jersey, Swiss Brown and their crosses with local animals, thereby providing negligible contribution to meat sector (Please see Annex 14.8 for pictures of important livestock breeds).

Table 4: Important Cow and Buffalo Breeds in Pakistan

Local Cow Breeds	Local Buffalo Breeds
Milch Breeds such as Sahiwal , Red Sindhi	Nili-Ravi
Draught Breeds such as Bhagnari, Dajal, Dhanni, Lohani, Rojhan, Tharparkar	Kundi
Foreign Cow Breeds	Azi Kheli
Holstein, Jersey, Swiss Brown	

Pakistan has 14% of total world buffalo population. Two famous breeds exist in the country, as Nili-Ravi (heavy weight) found in Punjab and Kundi (light weight) inhabited in Sindh whereas Azi-Kheli breed is mainly localized in the Swat valley in KPK. These breeds were included in the 2006 livestock census for the first time.

Small ruminants include sheep and goats. There are about 28 sheep breeds classified as thin-tailed sheep, generally found in irrigated areas. There are 19 breeds found under the category of fat tailed breed mainly found in arid rangelands and mountainous areas of Sindh, KPK and Azad Kashmir.

Usually sheep are kept for wool and mutton production. The wool is coarse in quality and is mostly used in the local carpet industry. Following table shows some important classification of sheep breeds;

Table 5: Important Sheep Breeds of Pakistan

Thin Tailed Sheep		Fat Tailed Sheep	
Bakkarwal	Kali	Balkhi	Michni
Buchi	Kajli	Bibrik	Pahari
Cholistani	Kooka	Dumbi	Rakhshani
Damani	Lohi	Gojal	Salt Range
Kacchi	Poonchi	Harnai	Tirahi
Kaghani	Sipli	Hashtnagri	Waziri
Kail	Thalli	Kohai Ghizer	

Goats are kept primarily for milk, meat or mohair production and can be classified as shown in following table;

Table 6: Important Goat Breeds of Pakistan

Milch	Meat	Mohair
Beetal	Barbari	Pak Angora
Dera Din Panah	Chapper	Bikaneri
Kamori	Teddy	Kaghani
		Khurasani

Camels have a unique ability to convert scanty plant resources of the desert into milk, meat and fiber. Two types of camels are found in Pakistan;

- i. Mountain camels (locally known as Pahari or hill camels), found in Northern Punjab and Balochistan
- ii. Riverine camels, found in the deserts and irrigated plains of Punjab and Sindh

There are 20 breeds of camel in Pakistan as shown in following table;

Table 7: Important Camel Breeds of Pakistan

Balochistan	Punjab	Sindh	Khyber Pakhtunkhwa
Kacchi	Bagri	Dhatti	Gaddi
Brahvi	Brela	Kharai	Ghulmani
Kharani	Campbelpuri	Larri	Khader
Makrani	Kala-Chitta	Sindhi	Maya
Lassi	Mareecha	Sakrai	
Pishin			
Rodbari			

Meat is usually a by-product of a camel production system which usually comes from old males and females that have served useful functions such as milking in their earlier life. Only a limited number of castrated males are raised especially for slaughter on the eve of Eid-ul-Azha. In Pakistan, approximately 50,000 tons of camel meat is produced annually.

Camel meat markets, except in Sudan, are not well developed, but lucrative export opportunities to Egypt, Libya, Saudi Arabia and Gulf States exist. Camel meat has been scored as high as or better than beef by taste panels in the Arab states. Even outside Arab states, meat from young camels has been graded as having the taste of prime beef. In Pakistan, approx. 70–75 camels are slaughtered daily in various slaughterhouses as it is used in small proportion or occasionally.

8.1.2 Prevailing Livestock Production Systems

Prevailing livestock production systems in Pakistan include;

i. Rural Dairy and Livestock Production

There are three dairy and livestock production systems generally used in rural conditions; Small-holder subsistence (1-5 animals), Small-holder market oriented (5-15 animals) and Rural Commercial with more than 50 animals (usually 90% buffaloes & 10% cows).

In all above-mentioned systems, the farming families consume milk and sell surplus milk, i.e. leftover after domestic consumption, to other consumers. With respect to the animal herd, usually male and female calves suckle the dams and are retained during lactation period. Traditionally, male calves with best breed characteristics are kept for breeding while other male calves are culled and considered for beef production.

Due to un-organized and scattered nature, it is difficult for the farmers to get technical assistance and business development services related to improved livestock farming.

ii. Commercial Dairy Production

This system is adopted in urban or peri-urban areas around big cities to fulfill the demand of consumers for milk and meat. The large commercial dairy herds range from 100 to 500 buffaloes and cows. The animals in production are kept in farm premises only. Unproductive animals and male calves are sold for beef production. Mostly, animals are sold for slaughter, after one lactation and replaced by high yielding animals.

iii. Commercial Calf Fattening Farming

This system is adopted in urban or peri-urban areas around big cities to fulfill the demand of meat. Large commercial calf fattening farms range from 100 to 500 calves, preferably males. Since these

are raised on formulated feed that is high in energy and protein in feedlots for 100-120 days, their live body-weight gains calves are improved.

iv. Desert/Rangelands Livestock Production

Rangelands constitute approximately 60% of the total 79.6-million-hectare area of the country. In deserts, livestock including sheep, goats, cows and camels are kept in base areas with water and grazing availability to fulfill needs for milk and meat production, draught power and transport. Livestock is kept either as nomadic or transhumant system. Nomadic flocks keep on moving constantly in search of free grazing areas however in the winter season, the farmer may need to buy feed from other sources due to scarcity of forage. The nomads sell their animals during the period of feed scarcity, therefore in winter the price of sheep and goats is slightly lower than prevailing in the rainy season.



Figure 9: Desert Nomads

In transhumant system, the human population along with their livestock wealth migrates from desert areas or cold regions of northern parts of the country to the nearest irrigated or low-lying lands. This migration always creates stress towards feed resources and affects the grazing capacity of the lands, hence affecting the feed and meat prices in the prevailing market.

8.2 Modern Meat Processing Industry of Pakistan

International buyers are increasingly demanding compliance to safety, environment, ethical and social standards along with demands for product quality and reliability. Non-compliance to International Standards is one of the key bottlenecks in export enhancement of Red Meat from Pakistan. It is critical that issues pertaining to compliance be addressed in a holistic manner.

The strength of Pakistan's meat sector is based on the capacity to produce 'Halal' meat, with over 220 million local consumers and direct access to millions of consumers of Halal meat in Afghanistan, Central Asia and the Middle East. About 80% of Pakistan's Halal meat exports currently go to the Middle East, with major destinations being Saudi Arabia and the UAE. Other potential markets for Pakistani meat are the Asia Pacific region, North-Africa and the Far East. However, being able to export to Thailand, Indonesia, China, and Russia, Pakistan will need the World Organization for Animal Health (OIE') endorsement of the Foot and Mouth Disease Progressive Control Pathway.



Figure10: A modern Abattoir

Many companies in Pakistan are processing mutton and beef. The supply chain is fragmented where traders and market agents play a key role from the farm to livestock markets, abattoirs and export. Quality and types of meat processed for different markets also varies. The value chain identifies a comprehensive list of compliance and standards requirements at different stages of the potential meat market. Certification requirements are essential for greater integration in global supply chains through compliance.

While procuring animals, the certifications required by meat exporter are usually Global GAP and Traceability⁴. Animals of different breeds are mainly procured from livestock markets where animals from different surrounding farms are brought. Health of the animal may be affected by poor husbandry practices, diseased conditions due to lack of or low vaccination, parasitic infestations due to unhygienic farm conditions and contaminated feed etc. However, the animals from feedlot farms are healthy and properly vaccinated, kept as per Good Husbandry Practices. These are properly tagged, hence may be easily tracked through any tracing system.

At meat processing units, the certifications required are Halal, ISO 22000 and HACCP etc. At this stage, unhygienic abattoir premises, mishandling of animals during transportation, no surety of Halal slaughtering method, poor meat inspection strategy etc. directly affects the meat quality, texture and taste.

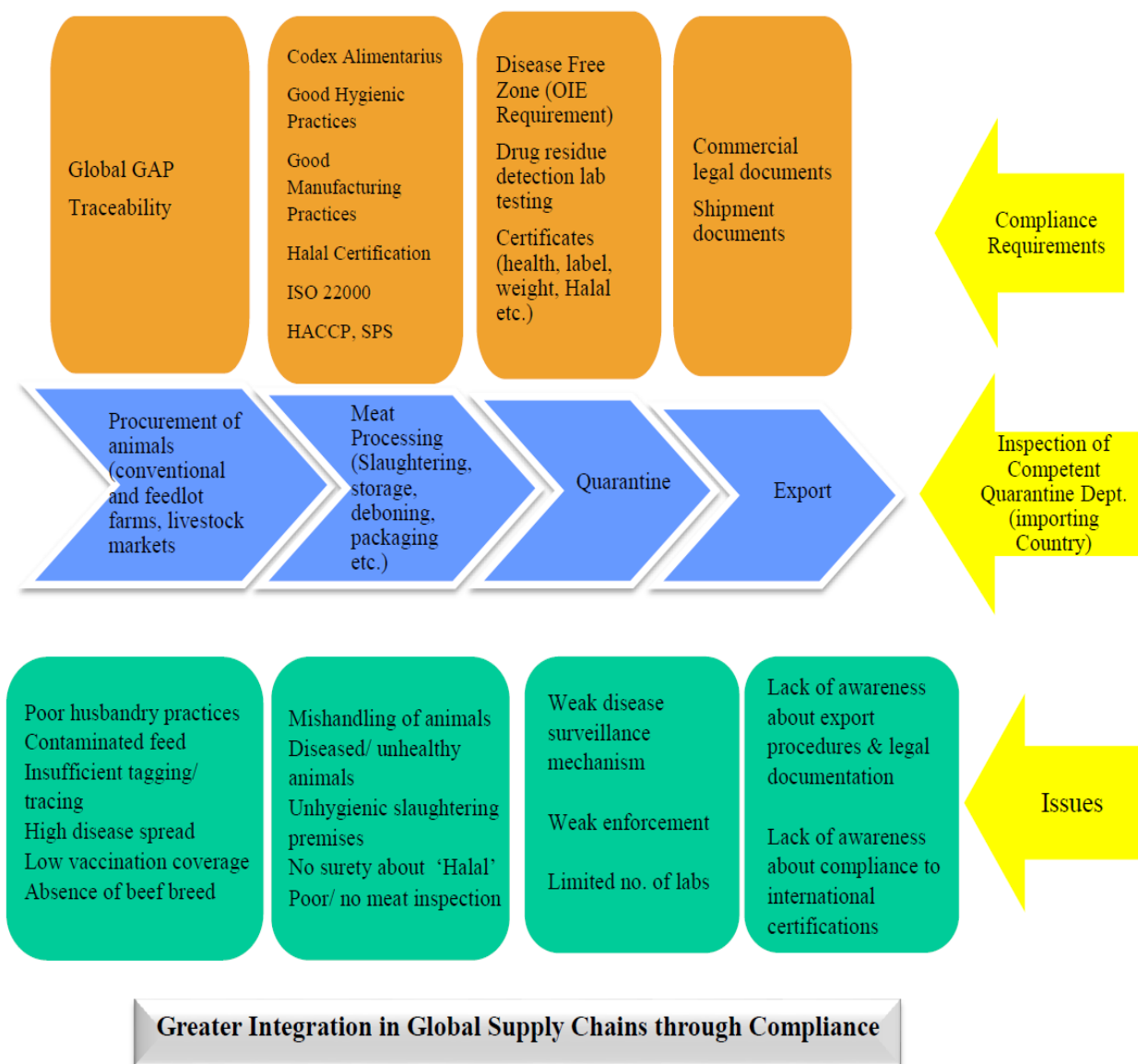
⁴ Please see Annex 14.1 for more about traceability.

Prior to export, quarantine procedure for drug residues and various certifications pertaining to health, label, weight, Halal etc. takes place, however, the issues here are insufficient number of testing laboratories at quarantine check and insufficient enforcement of laws pertaining to meat exports.

Due to insufficient and weak disease surveillance mechanism, there is no declared Disease-Free Zone (DFZ) as per required for FMD Free status declared by OIE (Please see Annex 14.4 to read more about DFZ). Since, Pakistan has no declared FMD-Free Status, the meat exports to other potential destinations suffer substantially. Similarly, required shipment and commercial legal documents at the time of export as per requirements of importing countries are also important.

The existing linkages along with required certifications are shown in following value chain;

Figure 10: Traditional Value Chain of Meat Processing and Export



According to Pakistan's Meat Exporters Association, GCC markets are now demanding higher quality meat products which are chilled, vacuum-packaged, frozen, and price competitive. Additionally, most export markets have started to demand traceable and larger carcasses, and boneless products and by-products. However, currently more than 90% of meat exported from Pakistan consists of fresh and chilled quartered carcasses which are sent by air cargo and bear very high freight charges that reduce the competitiveness of Pakistani meat in the market. Very limited value-added products are being exported from Pakistan despite market demand.

There are 30 –35 government approved private sector slaughter houses, many of which export beef and mutton to international markets. These abattoirs are functioning at one-quarter of their peak capacity. Apart from a few of these slaughter houses, there is a lack of proficiency in processing bovine meat for de-boning and freezing for international markets. The meat processors are limited to capture greater share within existing beef segments in the GCC markets and unable to compete in the frozen market i.e. exports of chilled carcasses and bone-in cuts remain the biggest export market. Some large-scale, private companies have entered the meat processing field and are now fulfilling trade approval and compliance standards of HACCP and ISO 22000 Food Safety certifications.

Following are some of prominent meat export companies offering broader products at the local and international level to keep up with increasing demand.

Table 8: List of Local Prominent Slaughter Houses with Export Potential

Sr. no.	Abattoirs	Location ⁵
1	PK Livestock Company	Karachi
2	Zenith Associates	Lahore
3	Tazij Meat & Foods	Lahore
4	Syed Traders	Lahore
5	Organic Meat Company	Karachi
6	Anis Associates	Lahore
7	Abedin International	Lahore
8	Meat One	Karachi
9	Tata Best Foods Ltd.	Karachi
10	Fauji Meat Complex	Karachi
11	Al-Shaheer Corporation	Karachi

⁵ Source: PAMCO, All Pakistan Meat Processors and Exporters Association (APMEPA). Please contact APMEPA for companies details and contacts (section no. 11).

Out of these modern and state-of-the-art export abattoirs, only three companies i.e. Tazij Meat and Foods, Fauji Meat Complex and Organic Meat Company currently have advanced vacuum packaging technology, thus capable of preparing and packing value-added chilled products with increased shelf-life.

Pakistan currently has potential to produce one million ton of beef from about 7-8 million young male calves (based on an average carcass weight at 120 kg) who are left to mortality in the supply chain when their dams are transported without them from livestock markets to dairy hubs such as Karachi. According to Pakistan meat industry experts, the country's growing feedlot fattening industry can yield 1.5 million tons from young heavy carcasses (an average 180 kg). Despite this potential, during 2021-22 beef export accounted for approximately 79,000 tons, indicating underutilized export potential available in both production and processing segments of meat value chain (Source: PAMCO).

Exports of frozen meat require additional processing facilities on the existing abattoirs but more significantly, Pakistan is not able to compete on price as compared to India. Exports of chilled beef products are shipped via air which is an expensive mode of transportation and there are capacity constraints of cargo as well.

Hence, potential of Pakistan's meat industry is being curbed by the challenges including high cost of production, fluctuating supply of quality animals year-round, prevalence of Foot and Mouth Disease (FMD), limited value addition, high freight Cost, low productivity of local livestock breeds and high cost of grain results in high cost of beef production.

8.3 Pakistan's Red Meat Export Regime

The meat product categories are major export player in the overall global livestock sector. According to USDA, the world produced 58.74 million tons of beef in 2021-22. The total exported quantity of beef is around 12 million tons, with Brazil as the largest exporter of beef frozen (22.1%), followed by USA (14.3%), Australia (13.2%) and India (9.3%). Brazil, India, USA and Australia collectively export around 60 % of the total global beef exports, while Pakistan has very meager share of less than 1% in the market.

The following two products dominate Pakistan's export basket for livestock products;

- i. Meat & Meat Preparations (HS 02) have following sub-products;
 - a) Meat of bovine animals, fresh or chilled (HS Code 0201)
 - b) Meat of bovine animals, frozen (HS Code 0202)
 - c) Meat of sheep or goats - fresh, chilled or frozen (HS Code 0204)
 - d) Edible offal of red meat (HS Code 0206)
 - e) Meat and edible meat offal nes (HS Code 0208)
 - f) Meat and edible meat offal nes (HS Code 0210)



Figure12: Beef Carcass



Figure13: Mutton Carcass



Figure 11: Beef Offal



Figure 15: Minced Meat

- A. Animal Casings being the major exportable by-product of the meat sector. It mainly includes products such as Guts, Bladders and stomach of animals except fish whole or in pieces (HS 0504). The value of its exports in 2020 was recorded at US\$ 20.2 million which has increased to US\$ 30.3 M in 2021. The annual growth in value from 2017 to 2020 is 17%. The major import partners of Pakistan for this product are mainly countries of European Union such as Romania, Spain, Germany and Poland and Turkey.

Besides the above two products, live animals are also transported mainly to Afghanistan and Iran without any formal procedure and registration which puts pressure on the domestic and export supply of meat and meat by-products. The value of documented exports of live bovine and sheep/goats has dropped officially to zero as government implements ban on live animal's export.

Pakistan also enjoys geographical advantage due to close proximity with the Gulf States where approximately 12 hours are taken to transport chilled meat from slaughterhouse to the shelves of meat shops. Therefore, the specialty of Pakistan has evolved in export of chilled red meat. Preference on the basis of taste for Pakistani meat products in these markets is yet another comparative edge for Pakistan.

Meat exports can go further by preparing for other important markets such as China, Russian Federation, Association of South East Asian Nations (ASEAN), Central Asian Republics (CAR), European Union (EU) etc. by reducing costs of production and enhancing knowledge of import requirements in addition to other standards and regulations. Due to stringent requirements of traceability, Pakistan is unable to export to developed countries that are major consumers of meat and its by-products.

The potential market analysis for export of meat preparation from Pakistan to Gulf countries reflect that Pakistan's existing share in these markets is negligible which can be enhanced by formulation

of reasonable market penetration strategy after consultation with stakeholders. The Gulf countries are currently not imposing restrictive standards due to their current domestic insufficiency and the low cost of Pakistani live animals and meat imports. However, these standards whenever imposed in future may also make the Gulf region an unachievable market for Pakistan.

8.3.1 Pakistan's Beef Export

The processing of beef either fresh, chilled or frozen has tremendous potential to earn additional value, provided there exist improved facilities for processing, storage and transportation as per safety and health requirements of importing countries

Pakistan has been earning approximately US\$ 294 million annually from the export of beef and edible beef products. The share of Pakistan in international market for beef is shown in the following table;

Table 9: International Beef Market and Pakistan's Share in year 2020-21⁶

Product HS Code	Product Label	Pakistan's Export 2021		Growth Rate (2017-21)	World Export Share	Unit Value (US\$/T)
		Value (US\$M)	Quantity (Tons)			
'020110	Carcases or half-carcases of bovine animals, fresh or chilled	233.5	55,260	18%	11%	4,226
'020120	Fresh or chilled bovine cuts, with bone in (excluding carcasses and 1/2 carcasses)	37.54	9,401	115%	1%	3,993
'020130	Fresh or chilled bovine meat, boneless	0.14	31	-44%		4,387
'020210	Frozen bovine carcasses and half-carcasses	2.92	913	-33%	4%	3,191
'020220	Frozen bovine cuts, with bone in (excluding carcasses and half-carcasses)	2.25	592	-18%		3,796
'020230	Frozen, boneless meat of bovine animals	1.75	505	-40%		3,450
'020610	Fresh or chilled edible offal of bovine animals	1.85	910	39%		2,036

⁶ Source: Trade map

'020621	Frozen edible bovine tongues	0.003	2			1,500
'020622	Frozen edible bovine livers	0.08	37	83%		2,189
'020629	Frozen edible bovine offal (excluding tongues and livers)	13.70	6,591	0%		2,078
'020860	Fresh, chilled or frozen meat and edible offal of camels and other camelids [Camelidae]	2.603	564	289%	44%	4,615
'021020	Meat of bovine animals, salted, in brine, dried or smoked	0.516	164	-28%		3,146
'021099	"Meat and edible offal, salted, in brine, dried or smoked, and edible flours and meals of meat ...	9.90	3,755		1%	2,637
	Total	306.752	78,725			

A major share of beef products export goes to UAE, Saudi Arabia and Kuwait, as shown in the following table,

Table 10: Major Import Markets of Beef Fresh (HS 0201) ⁷for Pakistan

(values in US\$ M)

Importing Countries	2017	2018	2019	2020	2021
UAE	44.67	76.65	96.02	97.36	140.13
Kuwait	26.32	33.67	35.01	36.40	46.74
Saudi Arabia	27.24	26.04	32.09	29.46	28.72
Qatar	3.66	5.43	11.07	15.82	20.63
Afghanistan	2.12	2.53	10.54	23.03	14.48
Bahrain	4.00	9.59	10.62	15.06	13.98
Oman	5.72	6.44	8.60	7.04	6.46
Others(<5M\$)	0.07	3.17	6.25	0.08	0.07
Total (US\$ M)	113.79	163.51	210.20	224.24	271.20

⁷ Trade Map

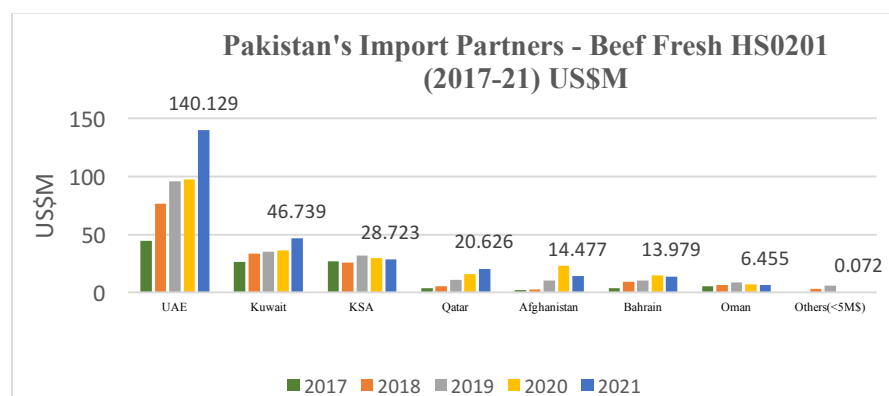


Figure 12: Major Meat Markets for Pakistan (HS 0201)

There is a significant increase in import value during last 5 years (2017-21) especially for UAE, Kuwait and while value for Kingdom of Saudi Arabia (KSA), Bahrain and Oman remained same. The values for Qatar and Afghanistan gradually increased and then decreased.

Table 11: Major Importing Markets of Beef Fresh (HS 0202) ⁸Exported by Pakistan

(Values in US\$ M)

Importing Countries	2017	2018	2019	2020	2021
UAE	21.55	6.56	4.58	13.16	2.72
KSA	6	3.19	1.65	0.5	2.08
Thailand	0	0	0	0.37	0.36
Hong Kong	0.49	0.3	0.69	0.31	0.35
Oman	2.08	1.43	0.71	0.15	0.32
Kuwait	1.06	0.29	0.04	0.56	0.3
Azerbaijan	0	0	3.07	0.71	0.3
Others(< 0.3 \$M)	19.22	8.53	8.47	4.76	0.48
Total (US\$ M)	50.39	20.3	19.2	20.53	6.9

⁸ Source: Trade Map

The table is represented in the graph below:

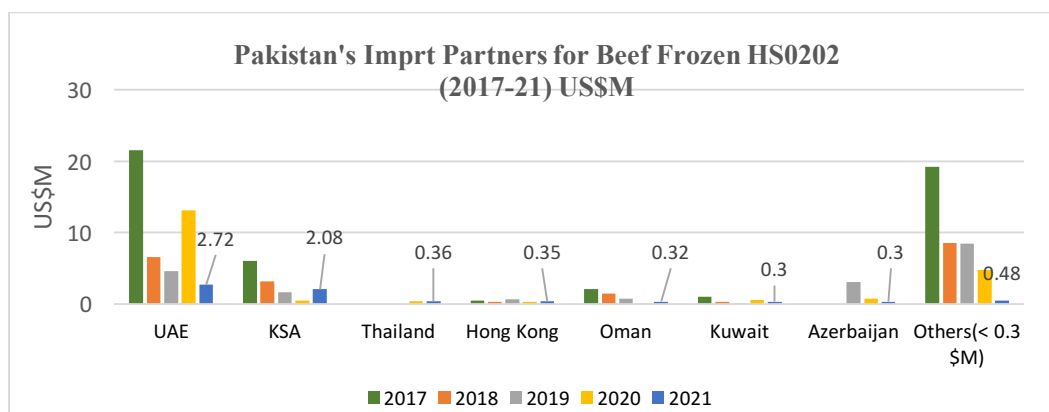


Figure 13: Major Meat Markets for Pakistan (HS 0202)

8.3.2 Pakistan's Mutton Export

Mutton production in Pakistan is executed through traditional livestock raising practices on grazing in rangelands and pastures. At present, feedlot fattening is practiced on a very small scale commercially. Pakistan has been earning approx. US\$ 80 million annually from the export of mutton and edible mutton products. International market for mutton and share of Pakistan is shown in the following table;

Table 12: Pakistan's Mutton Production and Share in International Market (2017-21)⁹

HS Code	Product label	Pakistan					
		Export	Annual Growth (% p.a.)			Share	Ranking
		Value US\$M	Value 2017-2021	Quantity 2017-2021	Value 2020-2021	% of World Exp.	Rank World Exp.
'020410	Fresh or chilled lamb carcasses and half-carcasses	22.62	71%	56 %	-17 %	1.6%	9
'020421	Fresh or chilled sheep carcasses and half-carcasses (excluding lambs)	5.04	-8 %	-11 %	-45 %	2.1%	11
'020450	Fresh, chilled or frozen meat of goats	3.02	-15 %	-17%	-50 %	0.7%	12
'020422	Fresh or chilled cuts of sheep, with bone in (excluding carcasses and half-carcasses)	0.48	236 %	36 %	-65 %		19

⁹ Source: Trade Map

'020441	Frozen sheep carcasses and half-carcases (excluding lambs)	0.22		291 %	-78 %	0.1%	19
'020430	Frozen lamb carcasses and half-carcases	0.113	24 %	-30 %	-40 %		29
'020442	Frozen cuts of sheep, with bone in (excluding carcasses and half-carcases)	0.07	108 %	0 %	138 %		50
'020443	Frozen boneless cuts of sheep	0.003					58

Following table shows category wise export of various mutton products from 2017 to 2022;

Table 13: List of Sheep & Goat Meat Products Exported by Pakistan¹⁰

(Values in US\$M)

Code	Product label	2017	2018	2019	2020	2021
'020410	Fresh or chilled lamb carcasses and half-carcases	3.76	4.61	6.41	27.22	22.62
'020421	Fresh or chilled sheep carcasses and half-carcases (excluding lambs)	8.11	8.13	23.88	9.20	5.04
'020450	Fresh, chilled or frozen meat of goats	5.60	8.43	8.07	6.01	3.02
'020422	Fresh or chilled cuts of sheep, with bone in (excluding carcasses and half-carcases)	0.08	0.00	0.00	1.39	0.48
'020441	Frozen sheep carcasses and half-carcases (excluding lambs)	0.00	0.01	0.01	0.97	0.22
'020430	Frozen lamb carcasses and half-carcases	0.54	0.00	0.04	0.19	0.11

¹⁰ Source: Trade Map

'020442	Frozen cuts of sheep, with bone in (excluding carcasses and half-carcasses)	0.01	0.00	0.00	0.03	0.06
'020443	Frozen boneless cuts of sheep	0.00	0.02	0.00	0.00	0.00
'020423	Fresh or chilled boneless cuts of sheep	0.10	0.00	0.00	0.00	0.00

The import partners for mutton are as following;

*Table 14: List of Import Partners for Mutton Products Exported by Pakistan*¹¹

(Values in US\$M)

Importing Countries	2017	2018	2019	2020	2021
UAE	5.81	7.43	9.58	16.29	11.34
KSA	7.59	7.05	16.88	13.51	8.13
Qatar	0.90	0.71	3.18	5.52	5.96
Kuwait	0.94	1.16	3.26	4.81	2.57
Bahrain	0.40	2.98	3.09	3.05	2.26
Oman	1.89	1.86	2.40	1.69	1.04
Hong Kong	0	0	0	0.03	0.23
Maldives	0	0	0.02	0.02	0.03
Jordan	0	0	0	0	0.01
Others (<12M\$)	0.64	0	0	0.10	0
Total	18.17	21.20	38.40	45.01	31.56

¹¹ Source: Trade Map

The table above can be represented as the graph reflecting a significant decline in export of mutton due to unavailability of animals.

On the other hand, international scenario shows that Pakistan has higher export growth trends for beef in both frozen and fresh types as indicated below;

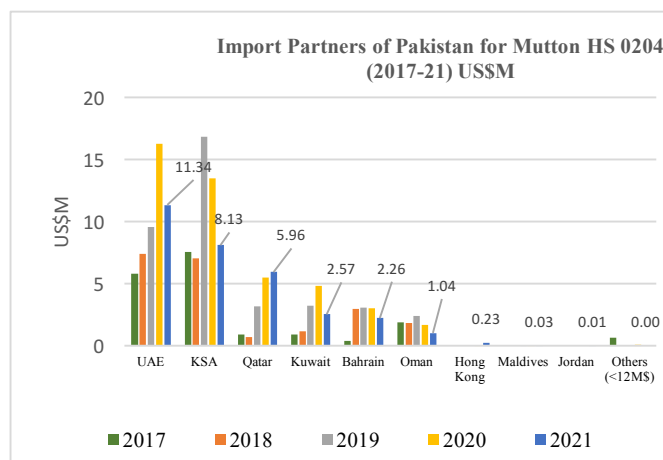


Figure18: Pakistan's Mutton Export (2017-21)

Table 15: Growth Rates of Trade of Meat Products¹²

Description		Beef Fresh		Beef Frozen		Mutton	
Growth in Value		2017-21	2020-21	2017-20	2020-21	2017-21	2020-21
	World Imports	4 %	21%	11%	13%	2%	-15%
	Pak's Export	23 %	21 %	20%	-30%	-10%	35%

The 'Beef Fresh' category reflected a good positive trend of growth at 21% in year 2020-21. 'Beef Frozen' category indicated a decline in annual growth rate of -30% due to the fact that Pakistan has had negligible exportable quantities of this category in past.

Mutton export in last year showed a decline in last five years due to unavailability of live animals due to uncontrollable livestock export and smuggling to Afghanistan, Iran etc. It is assumed that as many as 200,000 live animals are smuggled per month, which ultimately makes it very difficult for the exporters to meet export orders. However, the legal export just ranges between 15,000-20,000 animals per month. Smuggling has also caused abnormal raise in meat/beef prices.

¹² Source: Trade Map

Following table shows the summary of trade overview for various meat products;

Table 16: Red Meat Trade Overview

Description	Beef Fresh (HS 0201)		Beef Frozen ¹³ (HS 0202)		Mutton (HS 0204)	
Value Chains / Products	3 Products ¹⁴		3 Products		6 Products ¹⁵	
World Imports (Billion US\$)	27.77 (12.4%)		30.99 (13.8%)		8.75 (3.9%)	
Leading Markets/ Importing Countries	USA	17.9%	China	38.4%	China	27.2%
	Japan	7.9%	USA	8.5%	USA	16.4%
	Germany	7.3%	Korea	6.9%	France	10.2%
	Italy	7.0%	Japan	4.9%	UAE	4.4%
	Netherlands	5.9%	Hong Kong	4.4%	UK	4.2%
	Chile	5.3%	Egypt	3.0%	Germany	3.9%
	Korea	5.1%	Indonesia	2.4%	Canada	2.4%
	France	4.3%	Russian Fed.	2.2%	Japan	2.2%
	UK	4.2%	Taiwan	2.0%	Netherlands	2.2%
Pakistan's Leading Export markets	UAE	51.7%	UAE	39.3%	UAE	35.9%
	Kuwait	17.2%	Saudi Arabia	30.2%	Saudi Arabia	25.8%
	Saudi Arabia	10.6%	Thailand	5.2%	Qatar	18.9%
	Qatar	7.6%	Hong Kong	5.1%	Kuwait	8.1%
	Afghanistan	5.3%	Oman	4.6%	Bahrain	7.1%
	Bahrain	5.2%	Kuwait	4.4%	Oman	3.3%
Pakistan Share World Imports	0.97%		0.02%		0.36%	
Pakistan's Ranking - World Exports	23 rd		46 th		17 th	

¹³ HS 020210, 020220, 020230 Only

¹⁴ HS 020110, 020120, 020130 only

¹⁵ HS 020450, 020410, 020430, 020421, 020441, 020422 only

8.4 World Market for Meat

With the advent of WTO and globalization, livestock sector in general and meat and edible meat offal in particular have expanded and become competitive. Developing countries have experienced comparatively rapid growth in their meat exports. The trade has diversified from traditional carcass type to a broader array of meat preparations such as red meat with bones or boneless, canned meat preparations etc.

Growing consumer's interest and demand for fresh produce variety, freshness and year-round availability has stimulated this trade. This has been facilitated by improvement in livestock raising at farm level with good husbandry practices, better disease management, tagging system, international cold chain logistics etc. as well as through improvements in market access to industrial markets.

Major international categories and Harmonized System (HS) codes for meat and edible meat offal are classified as under;

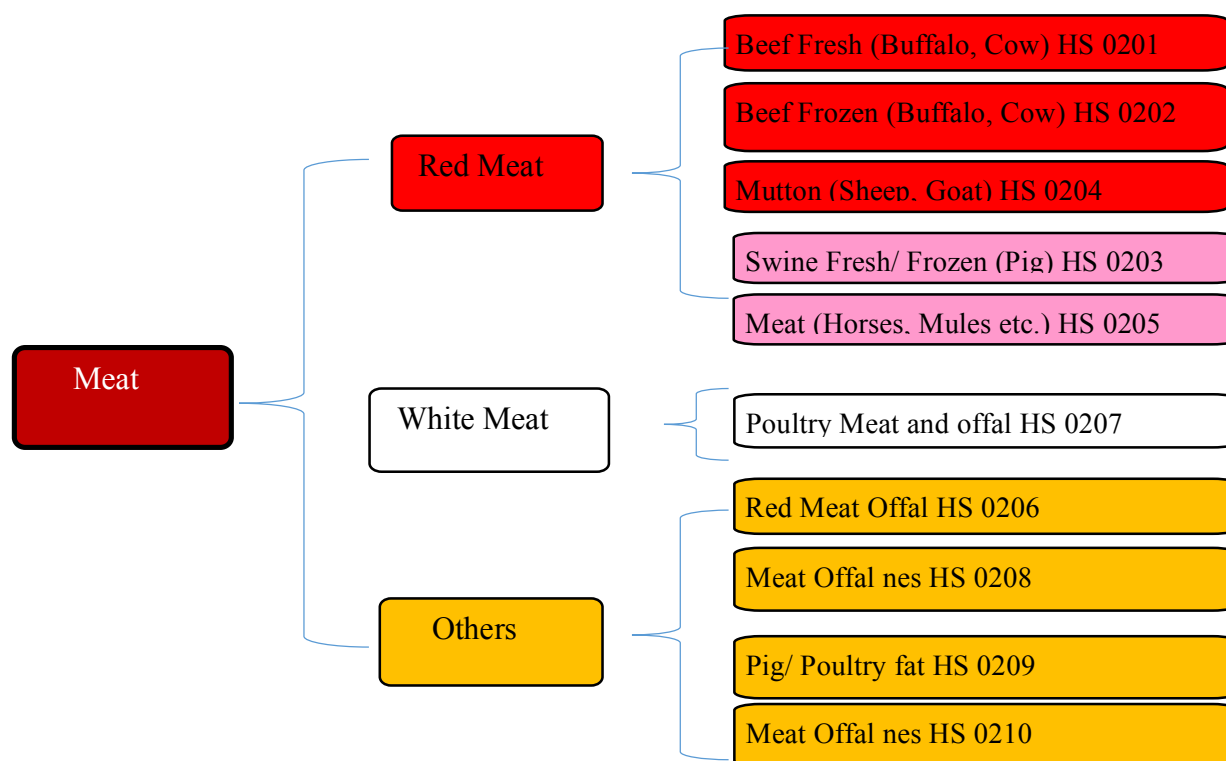


Figure 14 World Meat Categories

8.5 Categories of Meat and Edible Meat Offal (HS 02)

Different types of meat and edible meat offal along with relevant HS codes are tabulated and described in following table;

Table 17: Meat and Edible Meat Offal¹⁶

Product label/ Code	HS Code	Product label	Product code	Product label
Meat and Edible Meat Offal (HS 02)	0201	Meat of Bovine animals, fresh or chilled	020110	Bovine carcasses and half carcasses, fresh or chilled
			020120	Bovine cuts bone in, fresh or chilled
			020130	Bovine cuts boneless, fresh or chilled
	0202	Meat of Bovine animals, frozen	020210	Bovine carcasses and half carcasses, frozen
			020220	Bovine cuts bone in, frozen
			020230	Bovine cuts boneless, frozen
	0204	Meat of Sheep or Goats - fresh, chilled or frozen	020410	Lamb carcasses and half carcasses, fresh or chilled
			020421	Sheep carcasses and half carcasses, fresh or chilled
			020422	Sheep cuts, bone in, fresh or chilled
			020422	Sheep cuts, bone in, fresh or chilled
			020423	Sheep cuts, boneless, fresh or chilled
			020430	Lamb carcasses and half carcasses, frozen
			020441	Sheep carcasses and half carcasses, frozen
			020442	Sheep cuts, bone in, frozen
			020443	Sheep cuts, boneless, frozen
			020450	Goat meat, fresh, chilled or frozen
	0206	Edible Offal of Red Meat	020610	Bovine edible offal, fresh or chilled
			020621	Bovine tongues, edible offal, froze
			020622	Bovine livers, edible offal, frozen

¹⁶ Source: Trade map

			020629	Bovine edible offal, frozen nes
			020680	Sheep, goats, asses, mules or hinnies edible offal, fresh or chilled
			020690	Sheep, goats, asses, mules or hinnies edible offal, frozen
	0208	Meat and Edible Meat Offal nes	020860	Meat and edible offal Of camels and other camelids (Camelidae)
	0210	Meat and Edible Meat Offal	021099	Meat and edible offal, salted, in brine, dried or smoked, and edible
			021020	Bovine meat cured

The world market for different types of meat and edible meat offal is given in the following tables according to respective HS codes. The source of data is United Nations Trade Database. This data provides information to meat exporters as per following parameters;

- i. Total world market for that particular commodity
- ii. Top exporting countries with their market share that are the potential competitors
- iii. Market share of Pakistan in export
- iv. Top importing countries with their market share, which are the potential markets

HS 020110: Bovine carcasses and half carcasses, fresh or chilled

Pakistan's exports represent **11.2%** of world exports for this product which is ranked 4th in world's exports.

Total World Import Market: US\$ 2016.61 Million

Total World Exports Market: US\$ 2093.09 Million

Table 18: Exporting Countries for Year 2020-21 (HS 020110)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	Spain	382.73
2	Netherlands	293.58
3	France	267.40
4	Pakistan	233.53
5	Belgium	199.82
6	Germany	143.40
7	Poland	86.97
8	Others (<\$86m)	485.67

HS 020110 World Exports
US\$ 2093.09 M (2021)

Country	Percentage
Spain	18%
Netherlands	14%
France	13%
Pakistan	11%
Belgium	10%
Germany	7%
Poland	4%
Others (<\$86m)	23%

Table 19: Importing Countries for Year 2020-21 (HS 020110)

Sr.#	Importing Countries	Import Value (US \$ M)
1	Netherlands	481.54
2	Italy	338.08
3	Portugal	176.86
4	France	174.95
5	Germany	141.62
6	UK	111.85
7	Greece	108.51
8	Kuwait	105.49
9	Belgium	78.58
10	Others (<0.78\$m)	399.13

World Imports HS020110
US\$ 2016.61 M (2021)

Country	Percentage
Netherlands	23%
Italy	16%
Portugal	8%
France	8%
Germany	7%
UK	5%
Greece	5%
Kuwait	5%
Belgium	4%
Others (<0.78\$m)	19%

HS 020120: Bovine cuts bone in, fresh or chilled

Total World Import Market: US\$ 5063.44 Million

Total World Export Market: US\$ 5166 Million

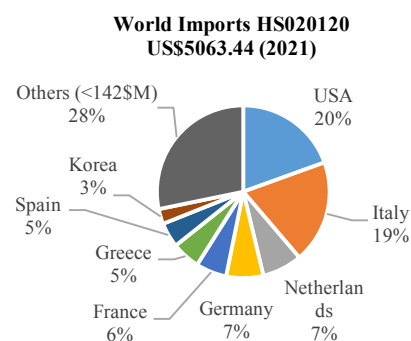
Table 20: Exporting Countries for Year 2020-21 (HS 020120)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	Poland	664.41
2	Mexico	594.37
3	Netherlands	588.25
4	France	522.92
5	Germany	512.70
6	Canada	374.09
7	Spain	279.10
8	USA	277.04
9	Belgium	195.21
10	Pakistan	37.54
11	Others (<195\$M)	1120.38



Table 21: Importing Countries for Year 2020-21 (HS 020120)

Sr.#	Importing Countries	Import Value (US \$ M)
1	USA	986.74
2	Italy	976.10
3	Netherlands	378.81
4	Germany	351.90
5	France	292.60
6	Greece	269.67
7	Spain	235.52
8	Korea	142.72
9	Others (<142\$M)	1429.39



HS 020130: Bovine cuts boneless, fresh or chilled

Total World Import Market: US\$ 20,382.1 Million

Total World Export Market: US\$ 21,505.8 Million

Table 22: Exporting Countries for Year 2020-21 (HS 020130)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	USA	4406.11
2	Australia	2892.80
3	Canada	2117.77
4	Netherlands	1905.97
5	Ireland	1760.06
6	Mexico	1162.64
7	Brazil	995.83
8	Paraguay	787.24
9	Pakistan	0.14
10	Others(<787\$m)	5477.32

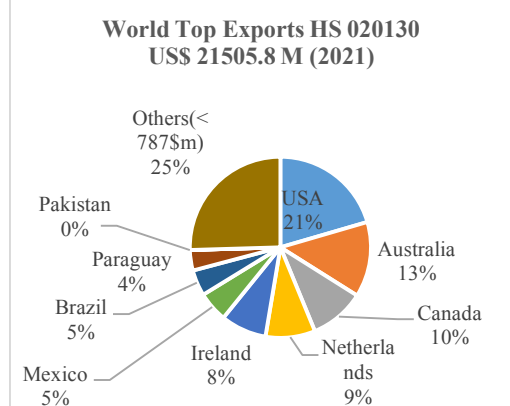
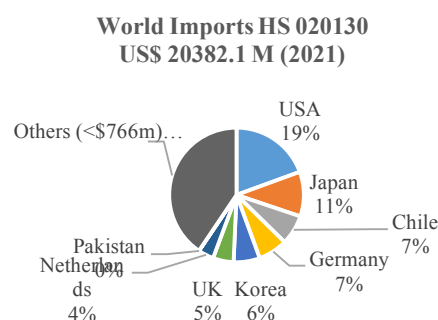


Table 23: Importing Countries for Year 2020-21 (HS 020130)

Sr.#	Importing Countries	Import Value (US \$ M)
1	USA	3960.34
2	Japan	2187.54
3	Chile	1465.29
4	Germany	1439.06
5	Korea	1282.43
6	UK	1012.09
7	Netherlands	766.25
8	Pakistan	0.49
9	Others (<\$766m)	8268.58



HS 020210: Bovine cuts, bone in, frozen

Total World Import Market: US\$ 125.11 Million

Total World Export Market: US\$ 81.15 Million

Table 24: Exporting Countries for Year 2020-21 (HS 020210)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	Spain	24.54
2	Poland	16.43
3	Belarus	7.88
4	Ukraine	4.86
5	USA	4.58
6	UK	3.54
7	NZ	3.07
8	Pakistan	2.91
9	Others (<\$2.9m)	13.33

World Exports HS020210
US\$ 81.15M (2021)

Country	Export Value (US \$ M)	Percentage
Spain	24.54	30%
Poland	16.43	20%
Belarus	7.88	10%
Ukraine	4.86	6%
USA	4.58	6%
UK	3.54	4%
NZ	3.07	4%
Pakistan	2.91	4%
Others (<\$2.9m)	13.33	13.33%

Table 25: Importing Countries for Year 2020-21 (HS 020210)

Sr.#	Importing Countries	Import Value (US \$ M)
1	S. Arabia	52.20
2	Netherlands	16.83
3	Spain	8.64
4	Uzbekistan	8.35
5	Morocco	7.86
6	Kazakhstan	5.01
7	China	3.07
8	Italy	2.70
9	Others (<\$2.7M)	20.46

World Imports HS 02021
US\$ 125.11 M (2021)

Country	Import Value (US \$ M)	Percentage
S. Arabia	52.20	42%
Netherlands	16.83	13%
Others (<\$2.7M)	20.46	16%
Spain	8.64	7%
Uzbekistan	8.35	7%
Morocco	7.86	6%
Kazakhstan	5.01	4%
China	3.07	3%
Italy	2.70	2%

HS 020220: Bovine cuts boneless, frozen

Total World Import Market: US\$ 2,775.43 Million

Total World Export Market: US\$ 2,624.5 Million

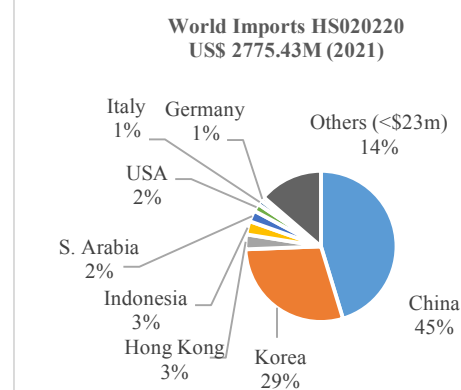
Table 26: Exporting Countries for Year 2020-21 (HS 020220)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	USA	830.07
2	Australia	415.51
3	Uruguay	298.38
4	New Zealand	272.05
5	Argentina	220.96
6	Belarus	89.25
7	Canada	75.12
8	Chile	54.18
9	Pakistan	2.25
10	Others (<\$54m)	366.75



Table 27: Importing Countries for Year 2020-21 (HS 020220)

Sr.#	Importing Countries	Import Value (US \$ M)
1	China	1257.00
2	Korea	807.38
3	Hong Kong	87.91
4	Indonesia	79.31
5	S. Arabia	66.74
6	USA	45.24
7	Italy	27.60
8	Germany	23.94
9	Others (<\$23m)	380.32



HS 020230: Bovine cuts boneless, frozen

Total World Import Market: US\$ 28,026.88 Million

Total World Export Market: US\$ 28,880.13 Million

Table 28: Exporting Countries for Year 2020-21 (HS 020230)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	Brazil	6956.07
2	Australia	3750.48
3	USA	3727.42
4	India	2936.40
5	NZ	2195.90
6	Argentina	1764.67
7	Uruguay	1700.34
8	Paraguay	768.63
9	Pakistan	1.74
10	Others(<\$768M)	5078.48

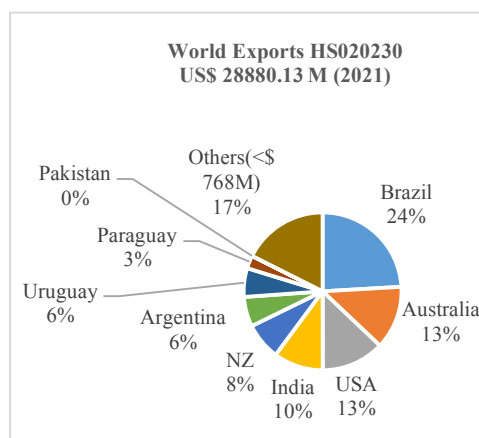
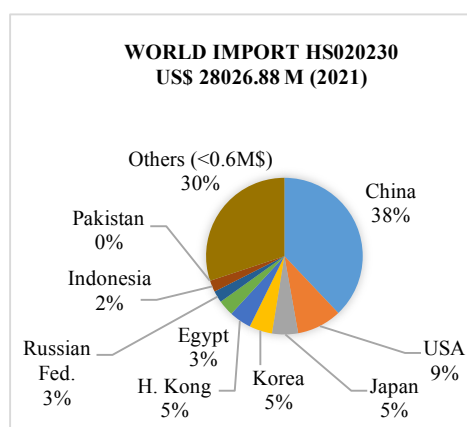


Table 29: Importing Countries for Year 2020-21 (HS 020230)

Sr.#	Importing Countries	Import Value (US \$ M)
1	China	10630.16
2	USA	2593.74
3	Japan	1504.66
4	Korea	1327.45
5	H. Kong	1280.04
6	Egypt	916.26
7	Russian Fed.	674.49
8	Indonesia	664.81
9	Pakistan	1.53
10	Others (<0.6M\$)	8433.75



HS 020610: Bovine edible offal, fresh or chilled

Total World Import Market: US\$ 13,02.26 Million

Total World Export Market: US\$ 1,013.87 Million

Table 30: Exporting Countries for Year 2020-21 (HS 020610)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	USA	312.32
2	Canada	148.42
3	Australia	106.95
4	Netherlands	84.49
5	Mexico	56.73
6	Germany	46.28
7	Pakistan	1.85
8	Others(<46m\$)	256.82

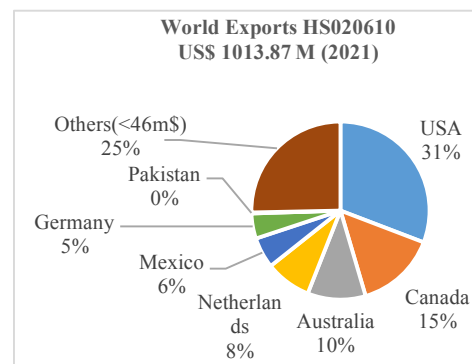
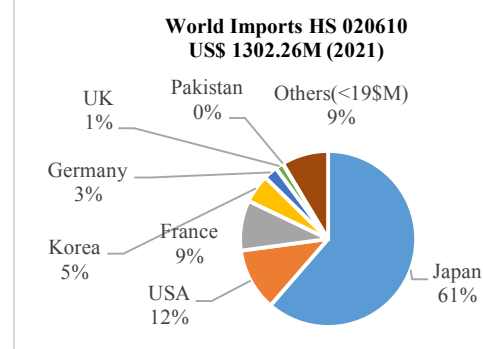


Table 31: Importing Countries for Year 2020-21 (HS 020610)

Sr.#	Importing Countries	Import Value (US \$ M)
1	Japan	799.19
2	USA	149.76
3	France	120.32
4	Korea	68.22
5	Germany	33.05
6	UK	19.50
7	Pakistan	0.42
8	Others(<19\$M)	111.80



HS 020621: Bovine tongues, edible offal, frozen

Total World Import Market: US\$ 451.87 Million

Total World Export Market: US\$ 522.03 Million

Table 32: Exporting Countries for Year 2020-21 (HS 020621)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	USA	168.31
2	Australia	119.53
3	NZ	51.93
4	Brazil	32.68
5	Canada	27.70
6	Argentina	22.26
7	Pakistan	0.00
8	Others(<22\$m)	99.63

World Exports HS 020621
US\$ 522.03 M (2021)

Country	Export Value (US \$ M)	Percentage
USA	168.31	32%
Australia	119.53	23%
NZ	51.93	10%
Brazil	32.68	6%
Canada	27.70	6%
Argentina	22.26	4%
Pakistan	0.00	0%
Others (<22\$m)	99.63	19%

Table 33: Importing Countries for Year 2020-21(HS 020621)

Sr.#	Importing Countries	Import Value (US \$ M)
1	Japan	275.66
2	Indonesia	51.52
3	Russian Fed.	36.83
4	Hong Kong	19.85
5	USA	16.72
6	Israel	6.03
7	Pakistan	0.00
8	Others (<6\$m)	45.25

World Imports HS020621
US\$ 451.87 M (2021)

Country	Import Value (US \$ M)	Percentage
Japan	275.66	61%
Indonesia	51.52	12%
Russian Fed.	36.83	8%
Hong Kong	19.85	4%
USA	16.72	4%
Israel	6.03	1%
Pakistan	0.00	0%
Others (<6\$m)	45.25	10%

HS 020622: Bovine livers, edible offal, frozen

Total World Import Market: US\$ 397.33 Million

Total World Export Market: US\$ 307.81 Million

Table 34: Exporting Countries for Year 2020-21 (HS 020622)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	USA	106.08
2	Argentina	45.41
3	Australia	30.06
4	Uruguay	13.81
5	Paraguay	13.80
6	New Zealand	11.24
7	Pakistan	0.08
8	Others (<11.3\$m)	87.34

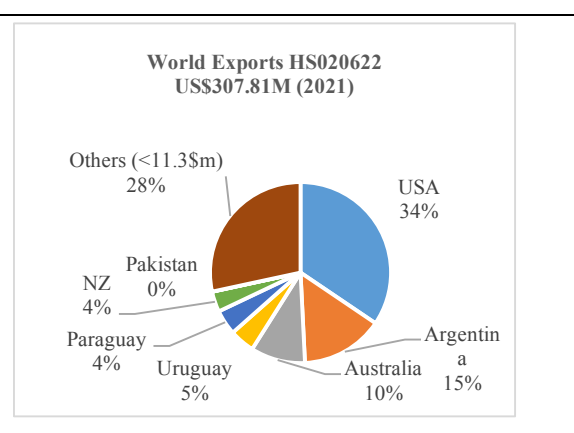
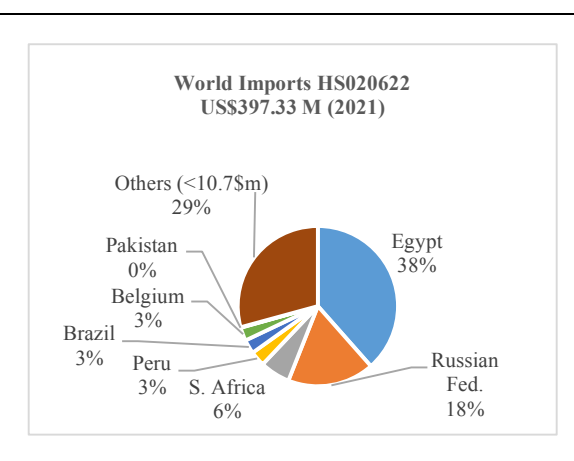


Table 35: Importing Countries for Year 2020-21 (HS 020622)

Sr.#	Importing Countries	Import Value (US \$ M)
1	Egypt	152.91
2	Russian Fed.	69.61
3	S. Africa	24.15
4	Peru	12.13
5	Brazil	11.22
6	Belgium	10.71
7	Pakistan	0.42
8	Others (<10.7\$m)	116.20



HS 020629: Bovine edible offal, frozen nes

Total World Import Market: US\$ 2,684.22 Million

Total World Export Market: US\$ 2,838.72 Million

Table 36: Exporting Countries for Year 2020-21 (HS 020629)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	Australia	471.32
2	USA	325.56
3	Brazil	311.02
4	India	299.40
5	Uruguay	203.23
6	Canada	169.06
7	Pakistan	13.69
8	Others (<169\$m)	1045.45

World Exports HS020629
US\$ 2838.72 M (2021)

Country	Percentage
Australia	17%
USA	11%
Brazil	11%
India	11%
Uruguay	7%
Canada	6%
Pakistan	0%
Others (<169\$m)	37%

Table 37: Importing Countries for Year 2020-21 (HS 020629)

Sr.#	Importing Countries	Import Value (US \$ M)
1	Hong K.	951.09
2	USA	303.58
3	Mexico	207.58
4	Korea	165.17
5	China	143.53
6	Indonesia	102.04
7	Pakistan	0.18
8	Others (<102\$m)	811.07

World Imports HS 020629
US\$ 2684.22 M (2021)

Country	Percentage
Hong K.	36%
USA	11%
Mexico	8%
Korea	6%
China	5%
Indonesia	4%
Pakistan	0%
Others (<102\$m)	30%

HS 020410: Lamb Carcass and half carcass, fresh or chilled

Total World Import Market: US\$ 1,073.73 Million

Total World Export Market: US\$ 1,385.0 Million

Table 38: Exporting Countries for Year 2020-21 (HS 020410)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	UK	433.72
2	France	226.10
3	Spain	170.80
4	Ireland	148.55
5	Australia	113.57
6	Greece	58.72
7	Pakistan	22.62
8	Others (<58\$m)	210.93

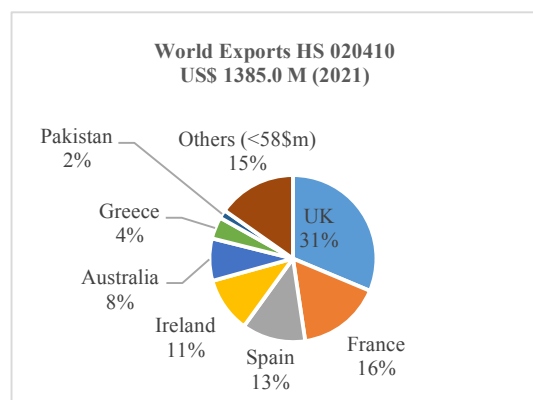
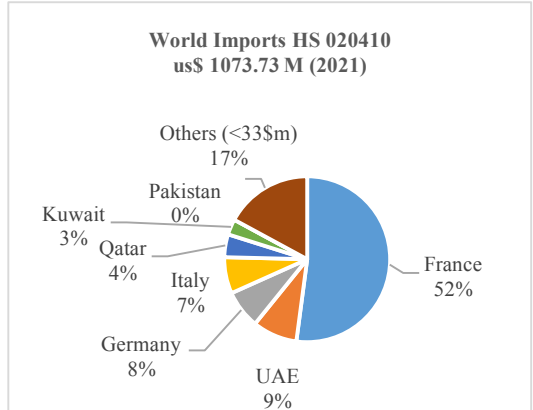


Table 39: Importing Countries for Year 2020-21 (HS 020410)

Sr.#	Importing Countries	Import Value (US \$ M)
1	France	559.38
2	UAE	93.64
3	Germany	80.25
4	Italy	76.24
5	Qatar	47.90
6	Kuwait	32.72
7	Pakistan	0.00
8	Others (<33\$m)	183.60



HS 020421: Sheep carcass and half carcass, Fresh or chilled

Total World Import Market: US\$ 365.50 Million

Total World Export Market: US\$ 246.47 Million

Table 40: Exporting Countries for Year 2020-21 (HS 020421)

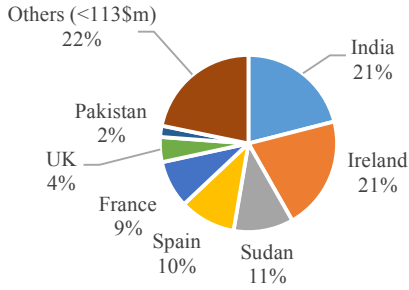
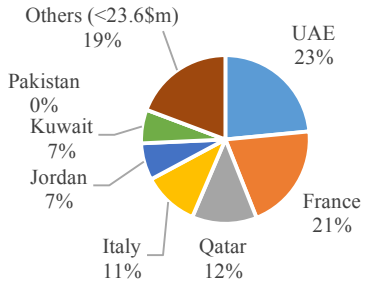
Sr.#	Exporting Countries	Export Value (US\$ M)	<p>World Exports HS020421 US\$ 246.47 M (2021)</p> 
1	India	51.78	
2	Ireland	51.16	
3	Sudan	26.96	
4	Spain	25.33	
5	France	21.26	
6	UK	11.28	
7	Pakistan	5.04	
8	Others (<113\$m)	53.66	

Table 41: Importing Countries for Year 2020-21 (HS 020421)

Sr.#	Importing Countries	Import Value (US\$ M)	<p>World Imports HS 020421 US\$ 365.50 M (2021)</p> 
1	UAE	85.79	
2	France	74.94	
3	Qatar	45.47	
4	Italy	39.30	
5	Jordan	25.95	
6	Kuwait	23.66	
7	Pakistan	0.00	
8	Others (<23.6\$m)	70.39	

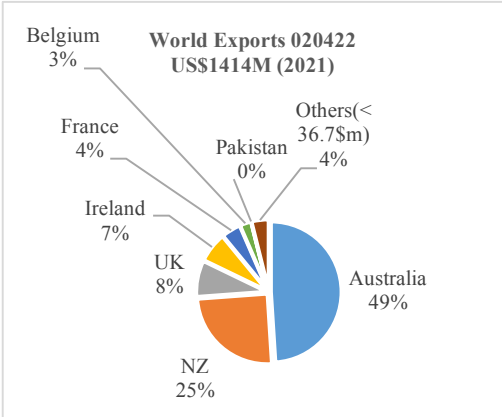
HS 020422: Sheep cuts, bone in, fresh or chilled

Total World Import Market: US\$ 1,323.9 Million

Total World Export Market: US\$ 1,414.0 Million

Table 42: Exporting Countries for Year 2020-21 (HS 020422)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	Australia	692.77
2	NZ	351.13
3	UK	117.84
4	Ireland	97.32
5	France	62.55
6	Belgium	36.76
7	Pakistan	0.48
8	Others(<36.7\$m)	55.11

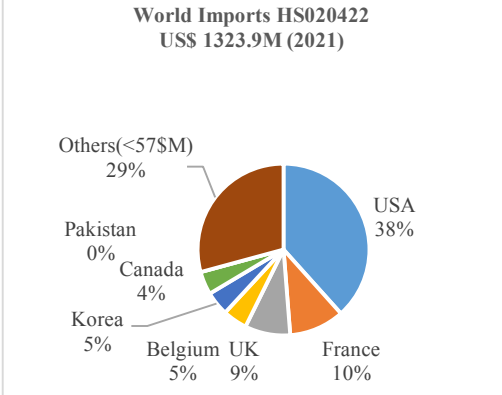


World Exports 020422 US\$1414M (2021)

Country	Percentage
Australia	49%
NZ	25%
UK	8%
Ireland	7%
France	4%
Belgium	3%
Pakistan	0%
Others(<36.7\$m)	4%

Table 43: Importing Countries for Year 2020-21 (HS 020422)

Sr.#	Importing Countries	Import Value (US \$ M)
1	USA	507.80
2	France	137.59
3	UK	113.23
4	Belgium	60.84
5	Korea	60.01
6	Canada	57.59
7	Pakistan	0.00
8	Others(<57\$m)	386.82



World Imports HS020422 US\$ 1323.9M (2021)

Country	Percentage
USA	38%
France	10%
UK	9%
Belgium	5%
Korea	5%
Canada	4%
Pakistan	0%
Others(<57\$m)	29%

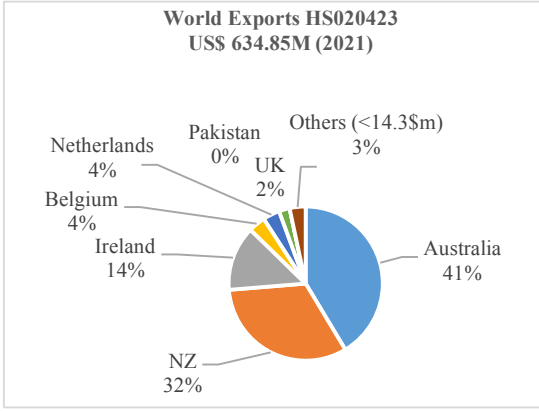
HS 020423: Sheep cuts, boneless, fresh or chilled

Total World Import Market: US\$ 607.34 Million

Total World Export Market: US\$ 634.85 Million

Table 44: Exporting Countries for Year 2020-21 (HS 020423)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	Australia	262.81
2	NZ	205.08
3	Ireland	86.30
4	Belgium	22.68
5	Netherlands	22.39
6	UK	14.30
7	Pakistan	0.00
8	Others (<14.3\$m)	21.29

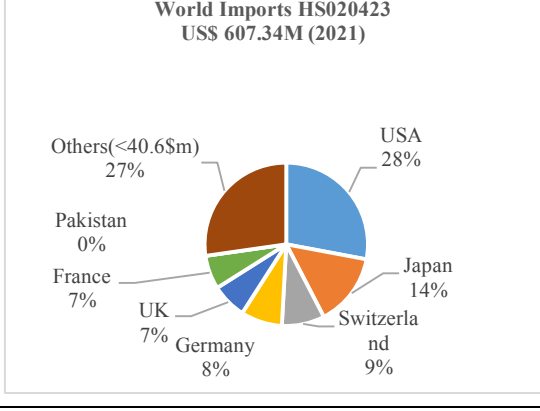


World Exports HS020423
US\$ 634.85M (2021)

Country	Percentage
Australia	41%
NZ	32%
Ireland	14%
Belgium	4%
Netherlands	4%
UK	2%
Pakistan	0%
Others (<14.3\$m)	3%

Table 45: Importing Countries for Year 2020-21 (HS 020423)

Sr.#	Importing Countries	Import Value (US \$ M)
1	USA	169.77
2	Japan	87.71
3	Switzerland	51.47
4	Germany	49.81
5	UK	42.38
6	France	40.63
7	Pakistan	0.00
8	Others(<40.6\$m)	165.58



World Imports HS020423
US\$ 607.34M (2021)

Country	Percentage
USA	28%
Japan	14%
Switzerland	9%
Germany	8%
UK	7%
France	7%
Pakistan	0%
Others (<40.6\$m)	27%

HS 020430: Lamb Carcass and half carcass, frozen

Total World Import Market: US\$ 306.7 Million

Total World Export Market: US\$ 271.2 Million

Table 46: Exporting Countries for Year 2020-21 (HS 020430)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	Australia	85.55
2	NZ	82.22
3	Uruguay	65.54
4	Chile	9.23
5	Spain	5.89
6	Belgium	3.30
7	Pakistan	0.11
8	Others(<3.3\$m)	19.36

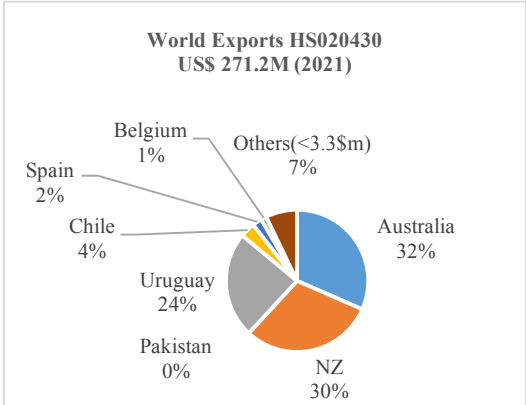
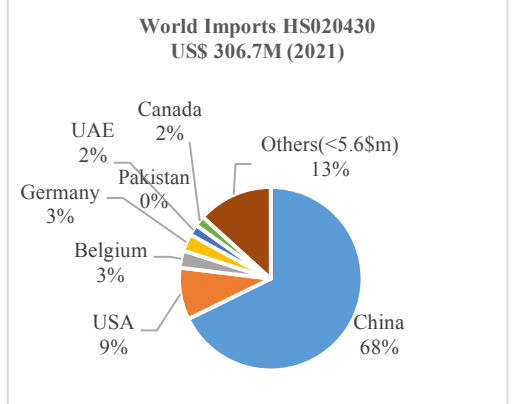


Table 47: Importing Countries for Year 2020-21 (HS 020430)

Sr.#	Importing Countries	Import Value (US \$ M)
1	China	207.85
2	USA	28.11
3	Belgium	9.31
4	Germany	9.29
5	UAE	5.92
6	Canada	5.64
7	Pakistan	0.00
8	Others(<5.6\$m)	40.64



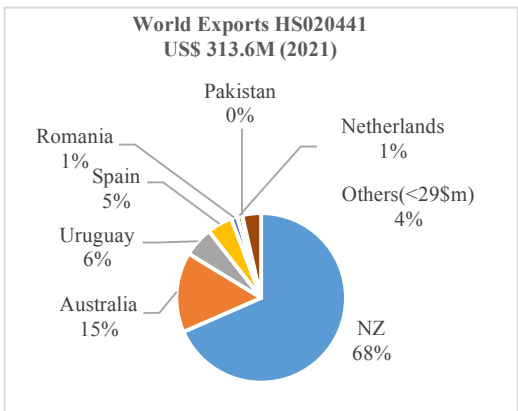
HS 020441: Sheep Carcass and half carcass, frozen

Total World Import Market: US\$ 340.5 Million

Total World Export Market: US\$ 313.6 Million

Table 48: Exporting Countries for Year 2020-21 (HS 020441)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	NZ	214.65
2	Australia	47.97
3	Uruguay	17.86
4	Spain	15.22
5	Romania	3.62
6	Netherlands	2.89
7	Pakistan	0.22
8	Others(<29\$m)	11.24

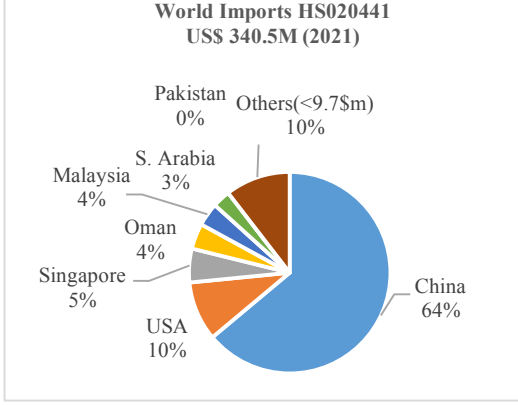


World Exports HS020441
US\$ 313.6M (2021)

Country	Percentage
NZ	68%
Australia	15%
Uruguay	6%
Spain	5%
Romania	1%
Netherlands	1%
Pakistan	0%
Others(<29\$m)	4%

Table 49: Importing Countries for Year 2020-21 (HS 020441)

Sr.#	Importing Countries	Import Value (US \$ M)
1	China	217.63
2	USA	32.42
3	Singapore	18.44
4	Oman	13.97
5	Malaysia	12.73
6	S. Arabia	9.71
7	Pakistan	0.00
8	Others(<9.7\$m)	35.59



World Imports HS020441
US\$ 340.5M (2021)

Country	Percentage
China	64%
USA	10%
Singapore	5%
Oman	4%
Malaysia	4%
S. Arabia	3%
Pakistan	0%
Others(<9.7\$m)	10%

HS 020442: Sheep cuts, bone in, frozen

Total World Import Market: US\$ 2,187.54 Million

Total World Export Market: US\$ 2,184.05 Million

Table 50: Exporting Countries for Year 2020-21 (HS 020442)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	NZ	1769.84
2	Australia	1518.54
3	Netherlands	57.33
4	Spain	50.52
5	Uruguay	32.50
6	Germany	27.05
7	Pakistan	0.06
8	Others(<27\$m)	148.33

World Exports HS020442
US\$ 3604.2M (2021)

Country	Percentage
NZ	49%
Australia	42%
Others(<27\$m)	4%
Spain	1%
Uruguay	1%
Germany	1%
Pakistan	0%
Netherlands	2%

Table 51: Importing Countries for Year 2020-21 (HS 020442)

Sr.#	Importing Countries	Import Value (US \$ M)
1	China	1830.58
2	USA	384.47
3	Malaysia	151.96
4	UK	127.52
5	Korea	69.25
6	Canada	66.89
7	Pakistan	0.00
8	Others(<67\$m)	749.83

World Imports HS020442
US\$ 3380.5M (2021)

Country	Percentage
China	54%
Others(<67\$m)	22%
USA	11%
Malaysia	5%
UK	4%
Canada	2%
Pakistan	0%
Korea	2%

HS 020443: Sheep cuts, boneless, frozen

Total World Import Market: US\$ 792.15 Million

Total World Export Market: US\$ 841.12 Million

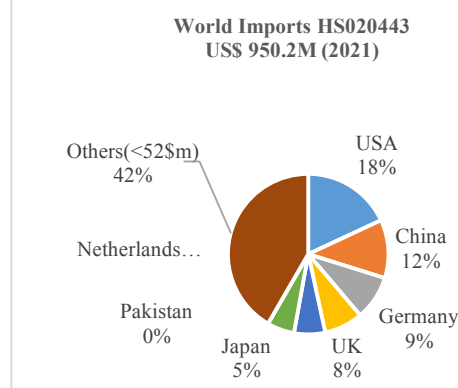
Table 52: Exporting Countries for Year 2020-21 (HS 020443)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	Australia	470.58
2	NZ	262.78
3	Netherlands	56.05
4	Spain	30.43
5	Ireland	29.91
6	Germany	17.29
7	Pakistan	0.00
8	Others(<17.3\$m)	67.23



Table 53: Importing Countries for Year 2020-21 (HS 020443)

Sr.#	Importing Countries	Import Value (US \$ M)
1	USA	171.69
2	China	111.71
3	Germany	85.16
4	UK	74.11
5	Netherlands	59.55
6	Japan	52.26
7	Pakistan	0.00
8	Others(<52\$m)	395.69



HS 020450: Goat Meat, Fresh, chilled or frozen

Total World Import Market: US\$ 342.48 Million

Total World Export Market: US\$ 282.52 Million

Table 54: Exporting Countries for Year 2020-21 (HS 020450)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	Australia	191.59
2	Ethiopia	86.40
3	Kenya	46.13
4	France	19.03
5	Spain	17.90
6	NZ	13.73
7	Pakistan	3.02
8	Others(<13.7\$m)	41.80

World Exports HS020450
US\$ 419.6 M (2021)

Country	Percentage
Australia	46%
Ethiopia	21%
Kenya	11%
France	4%
Spain	4%
NZ	3%
Pakistan	1%
Others (<13.7\$m)	10%

Table 55: Importing Countries for Year 2020-21 (HS 020450)

Sr.#	Importing Countries	Import Value (US \$ M)
1	USA	140.40
2	UAE	111.77
3	Korea	18.02
4	S. Arabia	16.88
5	Taiwan	15.35
6	Canada	12.61
7	Pakistan	0.00
8	Others(<15.3\$m)	89.54

World Imports HS020450
US\$404.5M (2021)

Country	Percentage
USA	35%
UAE	28%
Others (<15.3\$m)	22%
Canada	3%
Taiwan	4%
S. Arabia	4%
Korea	4%
Pakistan	0%

HS 020860: Meat and edible offal of camels and other camelids (Camelidae)

Total World Import Market: US\$ 9.90 Million

Total World Export Market: US\$ 6.0 Million

Table 56: Exporting Countries for Year 2020-21 (HS 020860)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	Australia	2.96
2	Pakistan	2.60
3	UAE	0.20
4	Kuwait	0.09
5	Belgium	0.07
6	Oman	0.01
7	Netherlands	0.01
8	Others(<0.08\$m)	0.01

World Exports HS020860
US\$ 6.0M (2021)

Country	Percentage
Australia	50%
Pakistan	44%
UAE	3%
Kuwait	2%
Belgium	1%
Oman	0%
Netherlands	0%
Others(<0.08\$m)	0.01%

Table 57: Importing Countries for Year 2022-21 (HS 020860)

Sr.#	Importing Countries	Import Value (US \$ M)
1	Oman	7.62
2	Morocco	0.90
3	USA	0.83
4	Canada	0.17
5	Kuwait	0.15
6	UAE	0.08
7	Pakistan	0.00
8	Others(<0.1\$m)	0.16

World Imports HS020860
US\$9.90 M (2021)

Country	Percentage
Oman	77%
Morocco	9%
USA	8%
Canada	2%
Kuwait	1%
UAE	1%
Pakistan	0%
Others(<0.1\$m)	2%


HS 020680: Sheep, goats, asses, mules or hinnies edible offal, fresh or chilled

Total World Import Market: US\$ 27.40 Million

Total World Export Market: US\$ 69.90 Million

Table 58: Exporting Countries for Year 2020-21 (HS 020680)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	Spain	29.61
2	USA	10.604
3	Ireland	8.629
4	France	5.422
5	UK	4.875
6	Australia	3.915
7	Pakistan	0.424
8	Others (<4\$m)	6.419

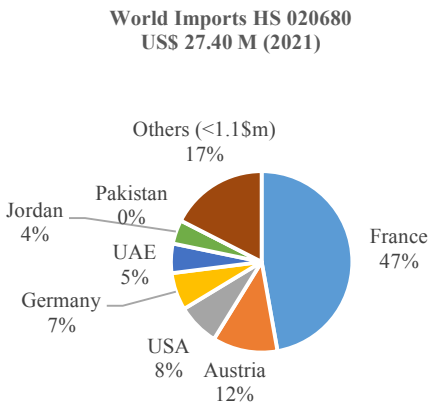


World Exports HS020680
US\$ 69.90 M (2021)

Country	Percentage
Spain	42%
USA	15%
Ireland	12%
France	8%
UK	7%
Australia	6%
Pakistan	1%
Others (<4\$m)	9%

Table 59: Importing Countries for Year 2020-21 (HS 020680)

Sr.#	Importing Countries	Import Value (US \$ M)
1	France	12.93
2	Austria	3.18
3	USA	2.06
4	Germany	1.83
5	UAE	1.44
6	Jordan	1.17
7	Pakistan	0.00
8	Others (<1.1\$m)	4.79



World Imports HS 020680
US\$ 27.40 M (2021)

Country	Percentage
France	47%
Austria	12%
USA	8%
Germany	7%
UAE	5%
Jordan	4%
Pakistan	0%
Others (<1.1\$m)	17%

HS 020690: Sheep, goats, asses, mules or hinnies' edible offal, frozen

Total World Import Market: US\$ 203.03 Million

Total World Export Market: US\$ 213.75 Million

Table 60: Exporting Countries for Year 2020-21 (HS 020690)

Sr.#	Exporting Countries	Export Value (US \$ M)
1	Australia	108.15
2	NZ	56.89
3	Spain	11.93
4	Ireland	8.97
5	Hong Kong	4.41
6	Netherlands	3.10
7	Pakistan	0.04
8	Others (<3\$m)	20.27

World Exports HS 020690
US\$ 213.75 M (2021)

Country	Percentage
Australia	51%
NZ	27%
Spain	6%
Ireland	4%
Hong Kong	1%
Netherlands	1%
Pakistan	0%
Others (<3\$m)	9%

Table 61: Importing Countries for Year 2020-21 (HS 020690)

Sr.#	Importing Countries	Import Value (US \$ M)
1	Hong Kong	59.43
2	China	22.78
3	UK	19.51
4	USA	18.08
5	Saudi Arabia	14.34
6	Canada	5.78
7	Pakistan	0.00
8	Others (<5.8M\$)	63.12

World Imports HS 020690
US\$ 203.03 M (2021)

Country	Percentage
Hong Kong	29%
China	11%
UK	10%
USA	9%
S.Arabia	7%
Canada	3%
Pakistan	0%
Others (<5.8M\$)	31%

8.6 Market Access Requirements

The World Trade Organization (WTO) agreement on sanitary measures specifies that countries should base their technical regulations, sanitary and phytosanitary measures on international standards. If they conform to the standards laid down, then by implication, international standards will not form barriers to trade¹⁷.

Compliance with standards and requirements is mandatory, as imported products require certificates issued by internationally accredited third-party conformity assessment bodies or more typically in Sanitary and Phytosanitary (SPS) matters, by official bodies in exporting countries.

The SPS management involves collection of basic and sophisticated technical and administrative functions, physical infrastructure, institutional structures, procedures and financial resources. Some basic SPS management functions are:

Apply Pre-requisite Program (PRP) e.g. Good Agricultural Practices (GAP), Good Manufacturing Practices (GMP), Good Hygienic Practices (GHP), Sanitation Standard Operating Procedures (SSOP), Hazard Analysis and Critical Control Point (HACCP) and Quality Management System (QMS) at farm and enterprise level

- i. Develop appropriate legislation and standards
- ii. Register/control feed and agro-chemical
- iii. Conduct basic research, diagnostics and analysis
- iv. Develop quarantine procedure, including emergency procedures
- v. Inspect/ license food establishments
- vi. Develop Disease Free Zones (DFZ)
- vii. Test product for residues, contaminants and microbiological contents
- viii. Verify/certify biological materials (seeds etc.)
- ix. Establish/maintain identity of products (traceability)
- x. Report possible hazards to treaty/reporting partner
- xi. Participate in international standard setting processes

Phytosanitary barriers relate to the possible presence of pathogens that are absent or have restricted occurrence in the importing country. Specified control measures include monitoring, establishing area freedom status, disease free programs, pre-shipment treatment with chemical and non-chemical agents, in-transit cold treatment, and inspection on arrival.¹⁸

¹⁷ <http://trtapakistan.org/wp-content/uploads/2015/09/Policy-Recommendation-Livestock.pdf>

¹⁸ <http://trtapakistan.org/wp-content/uploads/2012/04/Livestock.pdf>

Since there is dependence on chemical treatments for many products and processes in meat handling and processing, therefore there is no approved control mechanism suitable for organic products. For example, the usual method for disinfection of meat processing plant and equipment through chemicals which may not be acceptable under organic standards.

8.7 Challenges and Opportunities for Pakistan

Developing countries like Pakistan are dependent on agricultural products for a major portion of their export earnings; red meat is one of them. Pakistan is facing greater challenges to access not only developed markets but also some developing countries as it faces compliance problems with SPS standards due to limited SPS management and food safety capacity. Pakistan must have a certain minimum level of SPS management capacity in order to access high value markets for meat and meat products.

The domestic meat market is largely unregulated and accounts for a major part of total slaughtered animals. Majority of slaughterhouses have limitations regarding shortage of basic utilities such as water and electricity. The butchers lack training especially in the area of personal hygiene, while basic infrastructure and equipment is inappropriate for hygienic operations, pre and post mortem inspection is non-existent and the regulatory framework and its enforcement is ineffective. Transportation used is mainly not refrigerated and the entire supply chain is unhygienic with the incidence of salmonella infection in raw meat being common.

The private sector has established few animal stock holdings and yards to control quality and consistency of raw material supply. The private sector has improved the process of animal slaughtering as per 'Code of Practice for slaughterhouses' developed by PSQCA.

Pakistan has not been a traditional exporter of livestock and livestock products. Ironically from 1997 onwards, the country was able to gain a foothold in some markets at a time when European exporters had SPS problems of their own, namely Bovine Spongiform Encephalopathy (BSE) commonly known as Mad Cow Disease. Pakistan has felt the effect of quality/SPS standards in the meat and livestock sector; animal casing exports witnessed a rapid decline in 2003-04 due to Pakistan's placement in Category II List by the EU regarding the export of sheep casing, because of the country's uncertain status of BSE presence. Similarly, Romania placed a ban on Pakistani animal casing import as there were fears that the casings were contaminated with insecticide. In 2001, exports of meat to the country's main destination markets i.e. Saudi Arabia and UAE were banned, caused by concerns over hygiene in the country's slaughterhouses. After satisfying the standards required, the ban has been now lifted. In comparison to the world trade of meat and livestock, Pakistan's share has been very limited for meat and livestock in comparison to by-products such as leather goods. Opportunities do exist if SPS measures can be improved, especially for meat in Muslim countries.

There is growing concern among developing countries like Pakistan that stringent quality and SPS standards can potentially impact their trading opportunities in food and agricultural products. Inadequacies in the institutional and regulatory framework make developing countries like Pakistan especially vulnerable to trade interruptions and the emergence of negative reputations for compliance with international standards.

Pakistan must enhance its capability in addressing current and prospective challenges relating to international compliance particularly in SPS measures, in order that existing and potential export markets will accept the entry of the country's products based on quality, uniformity, health and hygiene.

8.8 Red Meat Import Requirements of Potential Countries

The whole world can be a potential market for meat and its products. Individual and specialized approach is needed to ensure that each country's import requirements are met. Each country or region has its own peculiarities, thereby, necessitating individual and specialized approach. Moreover, one cannot sell every product to every country. It is better to specialize in one's products first before exporting/marketing it. The next step is judicious selection of markets where one's product(s) could sell best. The requirements imposed by importing countries for red meat products are mentioned in the following sections. All information pertaining to import regulations in this document has been extracted from respective websites of the Countries listed;

8.8.1 Gulf Cooperation Council (GCC) / Middle East (ME) Countries

The GCC member countries include Kingdom of Saudi Arabia (KSA), United Arab Emirates (UAE), Kingdom of Bahrain, Kuwait, Sultanate of Oman and Qatar. More or less, these are also members of Middle East (ME).

A. Kingdom of Saudi Arabia (KSA)

The Saudi Ministry of Commerce implements the International Conformity Certification Program (ICCP)¹⁹ coordination with the Saudi Arabian Standards Organization (SASO). The SASO relies primarily on international standards when issuing Saudi specifications. The SASO specification conformity is applied to all products, both locally produced and imported, to provide the necessary consumer protection. All of the approved SASO procedures, including ICCP program, work within the guidelines of the International Standards Organization (ISO).

For all exports to the KSA, a Conformity Assessment Programme (CAP) has been implemented. All products require a Certificate of Conformity also referred to as a SASO CoC to enable them to be cleared through Saudi Customs. The CAP is the standard set by the authorities and is mandatory for all goods exported to Saudi Arabia and must be accompanied by a Certificate of Conformity. The program has number of key objectives;

- i. Protection of public health
- ii. Consumer safety
- iii. National security
- iv. Protection of religious and public morals
- v. Prevention of deceptive practices

Importation of Meat: In addition to the general shipping documents all meat shipments must be accompanied by the following certificates:

¹⁹ www.export2saudi.com

- i. **A Certificate of "Halal" Meat:** This certificate indicates that slaughtering has taken place in an officially licensed slaughterhouse according to Islamic procedures. The "Halal" meat certificate should be legalized by a recognized Islamic Center in the country.
- ii. **An Official Health Certificate:** This certificate should indicate the date of slaughter, kind of animal and average age, in each shipment. The health certificate must also indicate that animals were examined within 12 hours before being slaughtered, and directly after, by a licensed veterinarian, and were found free from disease and suitable for human consumption. The Health Certificate is required for all exports to KSA of all kinds of meats, (including poultry and seafood), meat products, livestock, vegetables, fruits, and human blood, attesting to the fact that they are free from pests and/or disease.

B. United Arab Emirates (UAE)

Export of meat and meat by-products to UAE is restricted due to its sanitary concerns about quarantine related to meat hygiene. Following certifications are essential;

- i. An original Health Certificate approved by the governmental health authority at the country of origin.
- ii. An original Halal Certificate issued by an Islamic Organization which is approved by UAE authorities (for meat or poultry and products thereof).
- iii. Any other certificates which might be required in case of any international epidemics or any certificates required based on local decisions (such as FMD-Free Certificate, GMO-Free Certificate, Dioxin – Free Certificates etc.).

8.8.2 Association of South East Asian Nations (ASEAN) Countries

The ASEAN member countries include Malaysia, Indonesia, Philippines, Singapore, Thailand, Laos, Brunei Darussalam, Cambodia, Myanmar and Vietnam.

A. Malaysia

Strict import guidelines are imposed on meat and food products containing meat because over half of the Malaysian population is Muslim. The Department of Veterinary Services (DVS) is responsible for development and enforcement of laws related to meat and meat products. They also issue import permits for livestock, meat and meat products. The DVS is responsible for ensuring products of animal origin for human consumption are hygienic, healthy, wholesome and fit for consumption. Under the Control of Slaughter Rules 1975, all meat and livestock products imported into the country must be certified halal and the products must originate from slaughterhouses which have been inspected and approved by the Malaysian veterinary and religious authorities (JAKIM – the Islamic Development Foundation of Malaysia).

The Food Act 1983 and the Food Regulation 1985 Malaysia regulate the various aspects of food standards in Malaysia. All food, beverage and edible agricultural products imported or manufactured locally are required to comply with the guidelines. Details of the Act and Guideline are available on the Malaysian Ministry of International Trade & Industry website.

B. Indonesia

Indonesia is a big market for imported meat and its products. “Halal” is important to a large portion of the Indonesian population. Indonesia requires that imported animal based food products be accompanied by a halal certificate issued by an approved halal certifying body of the exporting country. Based on the new Law of Halal Product Assurance, food and services related to food utilized by the public must be halal. All entities are expected to comply with the law. The Indonesian Council of Ulama (MUI) has released the list of approved halal certifying bodies for cattle slaughtering, processing industry, flavouring and poultry slaughtering.

Importers’ requirement: An Import Permission Certificate, issued by the Director General of Livestock Services (DGLS) must accompany with every import of meat. In a letter, requesting the certificate, importers must indicate the product being imported, quantity, and destination (restaurant, hotel, wet market, etc.).

Exporters’ requirements: In 2002, the DGLS issued a decree letter regarding the requirements and procedures necessary for a specific country to gain eligibility to export meat and other livestock products, including poultry to Indonesia. Below is a summary of these requirements:

- i. First, the exporter’s government should submit an official request to the office of Veterinary Public Health and DGLS to bring the products to the country. Based on the official request, DGLS Services will send a questionnaire to obtain information on the status of animal diseases and the Food Safety Management System (FSMS) in the exporting country.
- ii. Upon receipt, DGLS will either approve or request additional information or reject the application.
- iii. If approved, Memorandum of Understanding (MOU) will be signed between the Indonesian government and the exporting country, acknowledging the requirements.
- iv. The MOU is void if:
 - a) The government of Indonesia suspends imports from a country due to a violation of health requirements or halal certifications
 - b) The approved exporting country fails to export meat to Indonesia within two consecutive years
- v. An exporting country whose approval certificate is declared null and void is required to file a new application if the country plans to resume export of meat and meat products.
- vi. Following the approval as an exporting country, evaluation of individual slaughterhouses and processing plants is required. First, a plant that intends to export its products to

- Indonesia must submit an official request to the Indonesian DGLS, through the Veterinary Public Health agency
- vii. Based on the request, DGLS sends an application form to obtain a general description of the business unit, including information relating to veterinary public health. Then, the application form submitted is reviewed to determine if a plant fulfils Indonesian export requirements
 - viii. Upon completion of the review, DGLS will recommend if:
 - a) An on-site review is needed
 - b) An on-site review is delayed to allow for improvements or additional information
 - c) Application is rejected.
 - ix. A team of auditors, appointed by DGLS will conduct the on-site review. Team members will review the food safety assurance program in the establishment, the halal assurance in the establishment and the Halal certificate issued by an authorized Halal Certification Institution.

The on-sites review will be conducted at the establishment and the Halal Certification Institution or listed Islamic Organization in the country of origin. On-site reviews may also be conducted on the authorized agencies in the country of origin to verify conditions on animal diseases, animal health status and supervision of the animal-based foods safety system. Upon completion of the on-site reviews, the audit team member may either recommend an approval, a rejection, or improvements. Based on the recommendation, the DGLS issues either an approval, a postponement, or rejection of the business unit to export all meat to Indonesia

The regulation also states that DGLS may also appoint Indonesian inspectors to oversee application of food safety requirements and halal assurances during production. The inspectors will inspect unit facilities, sanitation programs, slaughtering procedures, carcass and product inspections, transport and warehouse facilities, port facilities, and shipping processes. A team of Indonesian auditors will conduct random surveillance of a processing unit that is certified to export its products to Indonesia. Surveillance is conducted at least once every two years.

8.8.3 Peoples Republic of China (PRC)

Meat production enterprises intending to export meat to China (including beef, mutton and edible by-products & offal) must apply for registration with the Certification and Accreditation Administration of the People's Republic of China (CNAC). Food from foreign production enterprises which have not been registered are banned from importation. All registered foreign production enterprises must carry out the production, processing and storage of meat for export to China under the supervision of the competent departments in their resident country (region), and must label the registration number approved by CNAC on the packaging of qualified products. When the products of a registered foreign enterprise are imported to China, they must undergo inspection and quarantine by a Chinese entry/exit inspection and quarantine department. Products

failing inspection and quarantine would be returned, destroyed or hygienically treated in compliance with the relevant laws and regulations of China. Serious incidents could result in the revocation of registration status. For details, please refer to Health Registration for the Meat Trade.

The importers of such products should apply for an Entry Animal/Plant Quarantine Permit for the Importation of Food Products of Animal or Plant Origin. An applicant for such a permit must possess independent legal person status and must also be an entity qualified to enter into trade contracts or agreements with foreign counterparts. Before applying for the quarantine permit, the applicant should also have filed with its local inspection and quarantine authority and obtained filed status as a domestic consignee of imported food products.

In accordance with china's import requirements, export agents and local import agents (consignees) must file with the official Filing Management System for Exporters/Agents and Consignees of Food. The lists of filed exporters or agents as well as filed importers are posted in the website of China's General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ). In applying for inspection and quarantine of imported food, the consignee of the imported food or its agent must enter into the application form the names of the importer and exporter and their file numbers.

The import licensing regime and registration requirements in China is complex and sometimes acts as barrier to the bilateral trade between Pakistan and China. It is observed that obtaining Quarantine Inspection Permits (QIPs) for import of agricultural products in China is a very complex and complicated process but there is a particular case relating to Pakistan as it exports animal feed, feed ingredients etc. In order to get license, the applicants have to provide product and manufacturing detail and even if the same is provided, the evaluation process of china's Ministry of Agriculture (MOA) is slow. Besides, it is noted that General Administration of AQSIQ is planning to introduce a system that duplicates MOA's registration process for animal feed products. Although licensing and registration requirements for certain imports are not very difficult yet they are cumbersome and are generally viewed as non-tariff barriers.

China's current legislation related to its Sanitary and Phytosanitary (SPS) regime includes the Law on the Entry and Exit of Animals and Plant Quarantine, the Food Hygiene Law, the Law on Animal Disease Prevention, the Law on Import and Export Commodity Inspection, the Law on Frontier Health and Quarantine, as well as accompanying implementing regulations and rules. With a large number of laws governing SPS measures, the SPS regime remains complex. As part of the WTO SPS Agreement, China sets technical standards (inspection, quarantine, etc) on imported agricultural products for SPS reasons. Such protocols, even though they should not be trade discriminating are actually acting as NTBs when, under these SPS measures, products do not meet certain conditions. Chinese regulations have been questioned, and at times it has been reported that Chinese SPS and TBT (Technical Barriers to Trade) measures have not compiled with those of the WTO. Discrepancies between central and provincial agencies on import

requirements subsist, and these involve administrative hold-ups and the lack of technical capacity and drawbacks in standardizing testing facilities. Overall China's import inspection protocols are not consistent with international standards.

With regard to Sanitary and Phytosanitary measures, China's inspection and quarantine agency, the General Administration of Quality Supervision, Inspection and Quarantine, has imposed-related requirements that have led to restrictions on imports of many agricultural goods from various countries. Importers need to obtain a Quarantine Inspection Permit (QIP) prior to signing purchase contracts for nearly all traded agricultural commodities, and AQSIQ sometimes slows down or even suspends issuance of QIPs at its discretion. Because of the commercial necessity to contract for commodity shipments when prices are low, combined with delays in having QIPs issued, many cargos of products arrive without QIPs, creating delays in discharge and resulting in demurrage bills for Chinese importers.

9 Introduction to Food Safety Management System: Standards and Requirements

The food sector including meat and meat by products has seen increasing demands on quality and guarantees of quality in past few decades which has led to the development of numerous quality systems, standards and norms. There are two classifications of standards according to their relevance;

Mandatory Standards: set by government in the form of regulations that include technical requirements such as testing, certification, packaging, labeling etc. these are enforced by rule in case of non-compliance.

Voluntary Standards: set through formal coordinated approach of key stakeholders in supply chain (NGOs, associations etc.). These are developed and monitored by individual enterprise. These are increasingly becoming a precondition for developing long term supplier/consumer relationship.

9.1 Types of Standards:

There are four (4) types of standards according to their coverage;

- i. **Product Standard:** Describe product characteristics such as safety, quality, performance, design, packaging, labeling etc.
- ii. **Production and Process Methods:** describes how products should be produced.
- iii. **Generic Management Standards:** describes what enterprise do to meet customer requirements and to achieve continuous improvement regarding size or type of the enterprise, the sector of activities and/or products e.g. ISO 22000:2005, ISO 9001:2008.
- iv. **Ethnic Standards:** describes what enterprises do to meet environmental impacts, work conditions e.g. ISO 14001:2007, SA 80001:2008.

9.2 Standards Setting Organizations:

There are four levels of organizations that set the various standards listed above.

- i. **Multilateral/ International Organizations** e.g. Codex Alimentarius Commission (CAC), World Organization for Animal Health (OIE), International Standards Organization (ISO).
- ii. **Regional Organizations or Trading Blocks** e.g. European Union (EU), Association of South East Asian Nations (ASEAN), South Asian Association for Regional Cooperation (SAARC).
- iii. **National Organizations** e.g. Pakistan Standards and Quality Control Authority (PSQCA).
- iv. **Private Industry and trade organizations** e.g. British Retail Consortium (BRC), International Food Standards (IFS), Safe Quality Food (SQF), GLOBALGAP

One common principal among most standards and requirements is that the Food Safety Management System (FSMS) should be the latest, up-to-date version based on scientific data and preventions.

9.3 Modern Food Safety Management System (FSMS):

Modern FSMS is a set of inter-related or interacting elements (system) to establish policy and objectives. To achieve these objectives, the system is used to direct and control an organization with regard to food safety.

Food safety is the responsibility of every stakeholder in and along the whole food chain, from regulators to producers to consumers. Government is responsible for the provision of enabling institutions and regulatory environments for food. Science-based actions and reliable data are essential for day-to-day decision making in modern FSMS adopted by any enterprise.

The science based activities usually include;

- i. Implementation of HACCP Systems
- ii. Establishing acceptable daily intakes for chemical additives in food
- iii. Estimating maximum allowance exposure levels to pesticides
- iv. Using labels to warn consumers about potential food allergens
- v. Using risk assessment to support food safety regulations and other decision making
- vi. Establishing product safety standards, performance standards and specifications in international trade
- vii. Resolving trade disputes based on WTO sanitary and phytosanitary agreements

9.3.1 Pre-Requisite Program (PRPs)

Prerequisite Programs (PRPs) are the basic conditions and activities needed to maintain a hygienic environment through the supply chain (e.g. meat) every organization in the meat supply chain is required to have its own set of PRPs that addresses meat safety issues in its unique environment. The PRPs needed by any enterprise depend upon the segment of supply chain in which it operates and the type of enterprise;

Some of PRPs related to meat production and processing are; Good Agricultural Practices, Animal Husbandry Practices, Good Veterinary Practices, Good Hygienic Practices (Please see Annex 14.3 for more details on GHP), Good Manufacturing Practices, Good Production Practices, Good Storage Practices and Good Trading Practices.

The PRPs at enterprise level help in controlling;

- i. The likelihood of introducing food safety hazards to a product through work environment
- ii. Biological, chemical, and physical contamination of the products including cross contamination between products
- iii. Food safety hazards levels in the products processing environment

Regulatory authorities usually provide a compulsory national framework for PRPs through laws and regulations and monitor the implementation of these laws.

The codex codes are not enterprise-specific but apply to all types of processing industries. Versions of PRPs which are specific to enterprise need to be established taking into account the rules and regulations as well as recommended codes of practices.

9.3.2 Hazard Analysis and Critical Control (HACCP) System

The HACCP system adopted by the Codex Alimentarius Commission (CAC) is a systematic and scientific tool or system to identify specific hazards and suggests measures for their control to ensure the safety of food. It assesses hazards and establish control systems that focus on prevention rather than relying mainly on end-product testing. The HACCP system is capable of accommodating change, such as advances in equipment design, processing procedures or technological developments. It can be applied throughout the food chain from primary production (e.g. farming) to final consumption (e.g. processing, packaging, labeling, storage transportation etc.) and its implementation should be guided by scientific evidence of risks to human health. While enhancing food safety, implementation of HACCP can also provide other significant benefits. It aids in inspection by regulatory authorities and promotes international trade by increasing confidence in food safety.

The HACCP is based on the principle of fault avoidance. A Critical Control Point (CCP) is defined as a link in the production chain of a food product where lack of monitoring could lead to a health hazard. The hazards within food chain may be microbiological, chemical or physical, that could pose a threat to the production of safe food. In simple terms, HACCP system involves identifying what could go wrong in a food system and planning how to prevent it. It covers proper food handling, preparation and storage, and are designed to control bacteria, mold and yeast growth and eliminate physical contaminants. The successful application of HACCP requires the full commitment and involvement of management and the work force. It also requires a multidisciplinary approach which include, when appropriate, expertise in agronomy, veterinary health, production, microbiology, medicine, public health, food technology, environmental health, chemistry and engineering.

The HACCP has become an internationally accepted food safety system. Its application is compatible with the implementation of quality management systems, such as ISO 9000 series and is the system of choice in the management of food safety within such systems. In addition, ISO

22000 is available, which shows the link between ISO 9001 and HACCP, enabling producers to implement a management system integrating the two standards. The advantages of HACCP system are;

- i. Safety of consumer: Exceptionally reliable guarantee of safety for consumer.
- ii. Internationally accepted: An internationally accepted standard for export sales.
- iii. Cost effective: A cost effective way of reducing wastage and recalls.
- iv. Market Access: Expanded market access.

Key steps in its approach are;

- i. Contract Signature.
- ii. Pre-audit (optional) gap analysis and diagnosis of current position against standard
- iii. Initial audit to verify the implementation of basic structure of ISO 22000 within the frame of legislation and regulations.
- iv. Certification Audit.
- v. Surveillance visits to follow the continual improvement.
- vi. Re-certification after 3 years through full audit or continual assessment.

Comprehensive report is delivered allowing the company to continuously improve its Food Safety Management Performance.

Prior to application of HACCP to any sector of the food chain, that sector should be operating according to the Codex General Principles of Food Hygiene, the appropriate Codex Codes of Practice, and appropriate food safety legislation. Management commitment is necessary for implementation of an effective HACCP system. During hazard identification, evaluation, and subsequent operations in designing and applying HACCP systems, consideration must be given to the impact of raw materials, ingredients, food manufacturing practices, role of manufacturing processes to control hazards, likely end-use of the product, categories of consumers of concern, and epidemiological evidence relative to food safety.

9.4 Standards Set by Multilateral/ International Organizations

Introduction to some major standards related to modern FSMS particularly for red meat production and processing is given below;

9.4.1 *Codex Alimentarius Commission (CAC)*

The Codex Alimentarius is a collection of standards, guidelines and codes of practice adopted by the Codex Alimentarius Commission (CAC)²⁰. The CAC is the central part of the Joint FAO/WHO Food Standards Programme and was established by FAO and WHO to protect consumer health and promote fair practices in food. It held its first meeting in 1963.

The Codex Alimentarius international food standards, guidelines and codes of practice contribute to the safety, quality and fairness of international food trade. Consumers can trust the safety and quality of the food products they buy and importers can trust that the food they ordered will be in accordance with their specifications. Public concerns about food safety issues are often placing Codex at the center of global debates. Biotechnology, pesticides, food additives and contaminants are some of the issues discussed in Codex meetings. Codex standards are based on the best available science assisted by independent international risk assessment bodies or ad-hoc consultations organized by FAO and WHO.

While being recommendations for voluntary application by members, Codex standards serve in many cases as a basis for national legislation. The reference made to Codex food safety standards in the WTO's Agreement on Sanitary and Phytosanitary (SPS) measures means that Codex has far reaching implications for resolving trade disputes. WTO members who wish to apply stricter food safety measures than those set by Codex may be required to justify these measures scientifically.

Codex members cover 99% of the world's population. More and more developing countries are taking an active part in the Codex process - in many cases assisted by the Codex Trust Fund, which strives to finance - and train - participants from such countries to enable efficient participation. Being an active member of Codex helps countries to compete in sophisticated world markets - and to improve food safety for their own population. At the same time exporters know what importers demand, and importers are protected from substandard shipments. International governmental and non-governmental organizations can become accredited Codex observers to provide expert information, advice and assistance to the Commission.

The Code of Hygienic Practices for Meat²¹ (documented as CAC/RCP 58-2005) includes all the best practices related to meat from farm to slaughtering, processing, handling, grading, packaging,

²⁰ www.codexalimentarius.org

²¹ www.fao.org/fao-who-codexalimentarius/en/

labeling, storage and transportation as per CAC. (Please see its list of headings in Annex 14.5). This Code has replaced the following Codex Codes of Practices;

- i. Recommended International Code of Hygienic Practice for Fresh Meat (CAC/RCP 11-1976, Rev. 1-1993)
- ii. Recommended International Code of Hygienic Practice for Game (CAC/RCP 29-1983, Rev. 1-1993)
- iii. Recommended International Code for Ante-Mortem and Post Mortem Inspection of Slaughter Animals and for Ante-Mortem and Post-Mortem Judgment of Slaughter Animals and Meat (CAC/RCP 41-1993)
- iv. Recommended International Code of Hygienic Practice for Processed Meat and Poultry Products (CAC/RCP 13-1976, Rev. 1 (1985)
- v. Recommended Code of Hygienic Practice for Poultry Processing (CAC/RCP 14-1976)
- vi. Recommended International Code of Practice for the Production, Storage and Composition of Mechanically Separated Meat Intended for Further Processing (CAC/RCP 32-1293).

The general requirements for control of incoming materials, use of water, packaging, documentation and records, and recall procedures are described in the General Principles of Food Hygiene (CAC/RCP 1 - 1969).

9.4.2 World Organization for Animal Health or Office International des Epizooties (OIE)

The World Organization for Animal Health (OIE) is the intergovernmental organization responsible for improving animal health across the globe. The need to fight animal diseases at global level led to the creation of the OIE through the international Agreement signed in 1924. In 2003, the Office became the World Organization for Animal Health but kept its historical acronym OIE. It is recognized as a reference organization by the WTO and has 180 member countries including Pakistan. It maintains permanent relations with other international and regional organizations and has regional and sub-regional offices on every continent.

The OIE ensures transparency in the global animal disease situation, collects and disseminates veterinary scientific information, safeguards world trade by publishing health standards for international trade in animals and animal products, improve the legal framework of national veterinary services and promotes animal welfare through a science-based approach. The OIE is placed under the authority and control of a World Assembly of Delegates consisting of Delegates designated by the Governments of all Member Countries. It is headquartered in Paris which

implements the resolutions passed by the International Committee and developed with the support of Commissions elected by the Delegates.

Pakistan is also a member of OIE Regional Commission for Asia and has permanent delegate²². Each Regional Commission organizes a conference devoted to technical items and to regional cooperation in the control of animal diseases after every two years in one of the countries of the region. These regional programmes may be developed to reinforce surveillance and control of major animal diseases, especially for regions where the OIE maintains a Regional or Sub-Regional Representation.

The OIE established a list of notifiable terrestrial and aquatic animal diseases for the year 2020 which includes 117 animal diseases, infections and infestations. The list includes 13 diseases and infections which are specific to only cattle. The diseases include: Bovine anaplasmosis, bovine babesiosis, hemorrhagic septicaemia, enzootic bovine leucosis, bovine viral diarrhea, trichomonosis and others.

The OIE and the Food and Agriculture Organization (FAO) of the United Nations have adopted Progressive Control Pathway for Foot and Mouth Disease (PCP-FMD) to design FMD control programmes for the FMD endemic countries. The PCP-FMD is developed by the FAO and EuFMD (European Commission for the Control of Foot-and-Mouth Disease) to assist and facilitate affected countries to control the spread and reduce the impact of the FMD virus.

The PCP-FMD is a set of FMD control activity stages as mentioned below:

- Stage 0: FMD risk is not controlled. No reliable information is available
- Stage 1: Risks and control options are identified
- Stage 2: Impact of FMD is reduced in targeted sectors / areas
- Stage 3: Virus circulation is reduced where the national Official Control Programme is applied
- Stage 4: Achieve OIE recognition of freedom with vaccination

The objectives of OIE are;

Ensure transparency in the global animal disease situation: Each Member Country undertakes to report the animal diseases that it detects on its territory. The OIE then disseminates the information to other countries, which can take the necessary preventive action. This information also includes diseases transmissible to humans and intentional introduction of pathogens. Information is sent out immediately or periodically depending on the seriousness of the disease. This objective applies to disease occurrences both naturally and deliberately caused.

²² Animal Husbandry Commissioner/ Chief Veterinary Officer, Ministry of National Food Security and Research, 8th Floor, Shaheed-e-Millat Secretariat, M. A Jinnah Road (Blue Area), Islamabad.

Dissemination is via e-mail, *Disease Information* and the World Animal Health Information Database (WAHID) Interface (Please see Annex 14.4 to read more about DFZ approach).

Collect, analyze and disseminate veterinary scientific information: The OIE collects and analyses the latest scientific information on animal disease control. This information is then made available to the Member Countries to help them to improve the methods used to control and eradicate these diseases. Guidelines are prepared by the network of 311 OIE Collaborating Centers and Reference Laboratories across the world. Scientific information is also disseminated through various works and periodicals published by the OIE, notably the *Scientific and Technical Review* (3 issues a year).

Encourage international solidarity in the control of animal diseases: The OIE provides technical support to Member Countries requesting assistance with animal disease control and eradication operations, including diseases transmissible to humans. The OIE notably offers expertise to the poorest countries to help them control animal diseases that cause livestock losses, present a risk to public health and threaten other Member Countries. The OIE has a permanent contact to international regional and national financial organizations in order to convince them to invest more and better on the control of animal diseases and zoonosis.

Safeguard world trade by publishing health standards for international trade in animals and animal products: The OIE develops normative documents relating to rules that Member Countries can use to protect themselves from the introduction of diseases and pathogens, without setting up unjustified sanitary barriers. The main normative works produced by the OIE are:

- i. Terrestrial Animal Health Code
- ii. Manual of Diagnostic Tests and Vaccines for Terrestrial Animals
- iii. Aquatic Animal Health Code
- iv. Manual of Diagnostic Tests for Aquatic Animals

OIE standards are recognized by the WTO as reference international sanitary rules. They are prepared by elected Specialist Commissions and by Working Groups bringing together internationally renowned scientists, most of whom are experts within the network of about 310 Collaborating Centres and Reference Laboratories that also contribute towards the scientific objectives of the OIE.

Improve the legal framework and resources of national Veterinary Services: The Veterinary Services and laboratories of developing and transition countries are in urgent need of support to provide them with the necessary infrastructure, resources and capacities that will enable their countries to benefit more fully from the WTO Sanitary and Phytosanitary Agreement (SPS Agreement) while at the same time providing greater protection for animal health and public health and reducing the threat for other countries which are free of diseases. The OIE considers the Veterinary Services as a Global Public Good and their bringing into line with international

standards (structure, organization, resources, capacities, role of paraprofessionals) as a public investment priority.

Provide a better guarantee of food of animal origin and to promote animal welfare through a science-based approach: The OIE Member Countries have decided to provide a better guarantee of the safety of food of animal origin by creating greater synergy between the activities of the OIE and those of the Codex Alimentarius Commission. The OIE's standard-setting activities in this field focus on eliminating potential hazards existing prior to the slaughter of animals or the primary processing of their products (meat, milk, eggs, etc.) that could be a source of risk for consumers. Since it was created, the OIE has played a key role in its capacity as the sole international reference organization for animal health, enjoying established international recognition and benefiting from direct collaboration with the Veterinary Services of all its Member Countries. As a mark of the close relationship between animal health and animal welfare, the OIE has become, at the request of its Member Countries, the leading international organization for animal welfare.

9.4.3 International Organization for Standardization (ISO)

The International Organization for Standardization (ISO)²³ creates documents that provide requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose. The benefits of ISO certification to food related enterprises are as follow;

- i. It allows organization within the food chain to demonstrate their commitment to food safety.
- ii. It improves internal and external communication.
- iii. It is able to show control of known food hazards.
- iv. It is an internationally accepted standard for export sales.
- v. It is cost effective way of reducing wastage and recalls.
- vi. It has expanded market access
- vii. It ensures continuous improvement of an organization's food safety management system.
- viii. It enables an organization to align its food safety management system with other recognized management systems such related to quality (ISO 9001) and environmental (ISO 14001).

A. ISO 22000:

Food safety is related to the presence of food-borne hazards in food at the point of consumption (intake by the consumer). As the introduction of food safety hazards can occur at any stage of the food chain, adequate control throughout the food chain is essential. Thus, food safety is ensured through the combined efforts of all the parties participating in the food chain. Organizations within the food chain range from feed producers and primary producers through food manufacturers, transport and storage operators and subcontractors to retail and food service outlets (together with inter-related organizations such as producers of equipment, packaging material, cleaning agents, additives and ingredients) and service providers etc.

The ISO 22000 family of International Standards addresses food safety management. The consequences of unsafe food can be serious and ISO's food safety management standards help organizations identify and control food safety hazards. As many of today's food products repeatedly cross national boundaries, International Standards are needed to ensure the safety of the global food supply chain. Following are some types of ISO 22000 certifications;

- i. ISO 22000:2005: Food safety management systems; Requirements for any organization in the food chain

²³ www.iso.org

- ii. ISO 22004:2014: Food safety management systems; Guidance on the application of ISO 22000
- iii. ISO 22005:2007: Traceability in the feed and food chain; General principles and basic requirements for system design and implementation

This ISO 22000 specifies the requirements for a food safety management system that combines the following generally recognized key elements to ensure food safety along the food chain, up to the point of final consumption:

- i. Interactive communication
- ii. System management
- iii. Prerequisite programmes (PRP)
- iv. HACCP principles

Communication along the food chain is essential to ensure that all relevant food safety hazards are identified and adequately controlled at each step within the food chain. This implies communication between organizations both upstream and downstream in the food chain. Communication with customers and suppliers about identified hazards and control measures will assist in clarifying customer and supplier requirements (e.g. with regard to the feasibility and need for these requirements and their impact on the end product).

Recognition of the organization's role and position within the food chain is essential to ensure effective interactive communication throughout the chain in order to deliver safe food products to the final consumer.

The ISO 22000 can be applied independently of other management system standards. Its implementation may be integrated with existing related management system requirements to establish a food safety management system that complies with the requirements of this International Standard. It has been aligned with ISO 9001 in order to enhance the compatibility of the two standards.

The ISO 22000 integrates the principles of the HACCP system and application steps developed by the CAC. By means of auditable requirements, it combines the HACCP plan with PRPs. Hazard analysis is the key to an effective food safety management system, since conducting a hazard analysis assists in organizing the knowledge required to establish an effective combination of control measures. This International Standard requires that all hazards that may be reasonably expected to occur in the food chain, including hazards that may be associated with the type of process and facilities used, are identified and assessed. Thus it provides the means to determine and document why certain identified hazards need to be controlled by a particular organization and why others need not.

During hazard analysis, the organization determines the strategy to ensure hazard control by combining the PRPs, operational PRPs and the HACCP plan.

B. ISO 9001:2000 Certification

Usually, successful companies are driven by quality of their customer related operations and product delivery as per international standards. Focusing on quality makes them an organization which is better equipped to win new opportunities in an increasingly competitive global marketplace. Certifying an organization to ISO 9001 offers proof of an organization's commitment to quality and, as a benchmark, allows to measure its progress towards continual improvement of business performance.

The ISO 9001: 2000 is an international standard related to quality management, applicable to any organization from all types of business sectors and activities. It is based on eight quality management principles (all fundamental to good business practice) which when fully adopted, can help improve the organizational performance. These are;

- i. **Customer Focus** – Organizations depend on their customers, and therefore need to shape activities around the fulfillment of market needs.
- ii. **Leadership** – Is needed to provide unity of purpose and direction.
- iii. **Involvement of People** – Creates an environment where people become fully involved in achieving the organization's objectives.
- iv. **Process Approach** – To achieve organizational objectives, resources and activities need to be managed as processes, with an understanding of how the outputs of one process affect the inputs of another.
- v. **System Approach to Management** – The effectiveness and efficiency of the organization depends upon a systemized approach to work activities
- vi. **Continual Improvement** – Adopting this as a part of everyday culture is a key objective for an organization.
- vii. **Fact Based Decision Making** – Effective decisions are based on the logical and intuitive analysis of data and functional information.
- viii. **Mutually Beneficial Supplier Relationships** – Such relationships will enhance the ability to create value.

C. ISO 14001 Certification

The ISO 14001 is part of a series of international standards applicable to any organization, anywhere, relating to environmental management. Based on the PDCA (Plan – Do – Check – Act) cycle, ISO 14001 specifies the most important requirements to identify, control and monitor the environmental aspects of any organization, and also how to manage and improve the whole system. Some business benefits are as under;

- i. Customer, investor, public, community assurance by demonstrating commitment
- ii. Improving cost control through conserving input materials and energy
- iii. Reducing incidents that result in liability, therefore reduces insurance costs
- iv. Assisting the attainment of permits and authorizations for local trade.

This certification emphasizes to care for the environment and improve the image of an organization irrespective of its size. At the same time, appropriate management of environmental issues contributes positively to economic gain and increases the competitiveness of the company. Proof of a responsible approach is fast becoming a key purchasing criterion. Environmentally conscious clients prefer to do business with like-minded companies, i.e. those who demonstrate their commitment through internationally recognized standards such as the ISO 14000 series.



Figure20: ISO Logo

9.5 Standards Set by Private Industry and Trade Organizations

9.5.1 Global Good Agricultural Practices (GLOBAL G.A.P.) Certification

The GLOBAL GAP is world's leading farm assurance program, translating consumer requirements into Good Agricultural Practice. Its certification is gaining growing acceptance globally, as a valuable scheme for assuring the quality of farm produce. The scheme gives companies the flexibility to benchmark already existing local schemes against the umbrella standard, thus driving wider acceptance.



Figure 21: The Logo

The certification covers: Food safety and traceability, Environment (including biodiversity), Workers' health, safety and welfare, Animal welfare. It also includes Integrated Crop Management (ICM), Integrated Pest Control (IPC), Quality Management System (QMS) and HACCP

GLOBAL GAP's roots began in 1997 as **EUREP GAP**, an initiative by retailers belonging to the Euro-Retailer Produce Working Group. British retailers working together with supermarkets in continental Europe become aware of consumers' growing concerns regarding product safety, environmental impact, health, safety and welfare of workers as well as animals.

It harmonized its own standards and procedures and developed an **independent certification system** for Good Agricultural Practice (GAP). The EUREP GAP standards helped producers comply with Europe-wide accepted criteria for food safety, sustainable production methods, worker and animal welfare, and responsible use of water, compound feed and plant propagation materials. Harmonized certification also meant savings for producers, as they would no longer need to undergo several audits against different criteria every year. Over the next ten years the process spread throughout the continent and beyond. Driven by the impacts of globalization, a growing number of producers and retailers around the globe joined in, gaining the European organization global significance.

To reflect both its global reach and its goal of becoming the leading international GAP standard, EUREP GAP changed its name to GLOBAL GAP in 2007. Its protocol has been discussed and agreed with majority of member retailer and producers. By seeking its certification, clients benefit from acceptance into the global community. Many Global retailers have mandate that their members should implement best practices as per GLOBAL GAP protocols as part of their due diligence defence against food safety issues. It also provides a basis for tighter supply chain control, thus giving added confidence towards product quality and safety. It also helps in;

- i. Maintaining food safety and consumer quality requirement

- ii. Maintaining a responsible attitude towards worker health, safety and employment conditions
- iii. Minimizing the use of registered and approved agrochemicals
- iv. Minimizing detrimental effects on the environment whilst conserving nature and wildlife
- v. Ensuring prudent use of natural resources.

A. The GLOBAL G.A.P. Livestock Transport Standard

Animal welfare during livestock transport from farm to farm and from farm to slaughter is crucial. Certified livestock producers are required to transport their farm animals using certified haulers. The GLOBAL GAP Livestock Transport Standard sets the framework for transporting companies to get certified, and assists livestock producers in finding GLOBAL GAP certified transporters. The Standard covers the transport of all types of livestock and applies to all operators and vehicles transporting animals over distances of more than 65 km and for third-party transport covering distances less than 65 km.

B. The GLOBAL G.A.P. Compound Feed Manufacturing Standard (CFM)

Suitable animal nourishment is an integral part of the food chain. Compound feed plays a vital role in the process of ensuring food safety along the entire livestock and aquaculture production and supply chain. The production and sourcing of raw materials plus their processing for quality-assured compound feed has become a major consumer concern.

The CFM defines the control points and compliance criteria for quality assurance in the production, supply and purchase of raw materials and feed ingredients for compound feed. It covers all the production steps from the purchase, handling and storage to the processing and distribution of compound feed. The standard covers commercial compound feed and not home-mixed feed, given that home-mixed feed does not leave the farm it is produced on. Producers who prepare home mixes must follow criteria already outlined in the Livestock or Aquaculture standard and do not require additional certification against CFM.

Compound feed manufacturers who supply GLOBAL GAP-certified producers must be certified against the CFM standard. GLOBAL GAP certified livestock and aquaculture producers are also required to source their feed from CFM-certified compound feed manufacturers or benchmarked standards. You can search for a certified compound feed manufacturer in GLOBAL GAP with a specific number like the GGN or via a country/product/standard combination (please note that in this case you need to choose a country, and afterwards other search filters (e.g. Country: Vietnam, Product=Compound Feed for Aquaculture, Standard=GLOBAL GAP Compound Feed Manufacturing).

The GLOBAL GAP also benchmarks existing CFM standards and established assurance systems of compound feed manufacturers. The standard serves as a reference that compound feed manufacturers and compound feed manufacturer assurance schemes can use to demonstrate their compliance with GLOBAL GAP requirements. And it helps livestock and aquaculture producers find reliable and assured sources for compound feed.

9.5.2 Safe Quality Food (SQF)24 System

The SQF is a management system that has been developed in Australia by food retailers and wholesalers. Food safety and quality are issues that have received a great deal of attention over the past few years in whole world. Various crises (e.g. dioxin crisis, Mad Cow disease or BSE crisis) have made consumers more aware of the importance of full control over the complete production cycle of food, from farm to fork.



Figure22: The Logo

The SQF system aims to enable actors in the food industry to meet product trace, regulatory, food safety and commercial quality criteria in a structured and cost effective manner. In addition, the objective of the SQF Management System, among others, is to raise standards of food safety and quality across the food chain, from primary producer to consumer through increased awareness of understanding and adoption of HACCP principles in an SQF management system. The SQF system can be used by all stakeholders in the production chain of food.

The SQF is based on existing management systems such as HACCP system for food hygiene as well as ISO 9000. Standards from these management systems are complemented with requirements on tracking and tracing. According to the SQF, it would be complicated to develop one management system for a sector that is as diverse as the food sector. Hence, there are two standards that can be applied:

A. SQF 1000:

This is a management system for low-risk companies in the primary agricultural sector and small scale processors on the food chain. It is most relevant out of the two systems for the Access Guide target group. It consists of three levels. These have been developed to indicate the stage at which the producer is in his food safety and quality management system.¹

²⁴ Source: SQF 1000 Codes

- i. **Level 1** Food safety fundamentals: Indicates that Good Agricultural Practices and fundamental food safety controls have been implemented to provide a sound foundation for further development of the management system.
- ii. **Level 2** Accredited HACCP based food safety plans: Incorporates all Level 1 system requirements and indicates that a food safety risk analysis of the crop, its production and harvest has been completed to identify the hazards and the action taken to eliminate, prevent or reduce their occurrence.
- iii. **Level 3** Comprehensive quality management systems development: Incorporates all Level 1 and Level 2 system requirements and indicates that a food quality risk analysis of the product and its process has been completed, the actions taken to prevent the incidence of poor quality have been implemented and the remaining quality management system procedures have been implemented.

B. SQF 2000

SQF 2000 is mainly applied in high-risk medium or large sized companies. The SQF system is certified by SQF-licensed certification bodies, “Registrars”, who must meet a set of requirements including HACCP SQF training. According to SQF International, raw material suppliers, contractors, primary producers, food manufacturers and, also transport and storage companies, hotels and restaurants have taken advantage of their SQF management system. SQF was developed in Australia, therefore mainly growers within and from countries exporting to Australia have adopted the system (including suppliers in Korea and the Philippines). The system has also been introduced in the United States, where from 2003 onwards the SQF system has been managed by the Food & Marketing Institute in the United States. In the EU, however, GLOBAL GAP and other systems have greater market impact. This means that the implementation of the SQF management system will probably only be beneficial for you if you intend to enter the Australian or US market, but is only necessary if your retailer requires it. Also note that SQF has been approved by the Global Food Safety Initiative, GFSI. The SQFI benchmarks existing food standards against key criteria.

9.5.3 Organic Certification

Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity. This system considers potential environmental and social impacts by eliminating the use of synthetic inputs such as synthetic fertilizers and pesticides, veterinary drugs, genetically modified seeds and breeds, preservatives, additives and irradiation etc. which are replaced by site-specific management practices essential to maintain and enhance the long-term soil fertility and prevent parasitic infestations and disease outbreaks.

‘Organic Food’ in simple terms can be defined as food that is natural and does not involve the usage of any kind of preservatives or artificial chemicals. In year 2000, USDA established a national standard for the term “Organic.” Organic food, must be produced without the use of fertilizers, pesticides, genetic engineering, growth hormones and antibiotics.



Figure23: Example of Organic Food

Within the organic farming system, natural fertilizers, such as manure or compost are applied to feed soil and plants. The beneficial insects and birds or traps are used to reduce pests and disease. The rotation cropping system with manual weeding is adopted to manage weeds. The animals are given organic feed.

The advantages of organic products are that these are environment friendly, widely accepted having consumer preference with good market potential. Whereas its only disadvantage is that it is costly.

Certified Organic Products are produced, stored, processed, handled and marketed in accordance with precise technical specifications (standards) and certified as "Organic" by a certification body. Once a certification body has verified conformity with organic standards, the product is labeled. This label will differ depending on the certification body but can be taken as an assurance that the essential elements constituting an "Organic" product have been met from the farm to the market. It is important to note that an organic label applies to the production process, ensuring that the product has been produced and processed in an ecologically sound manner. The organic label is therefore a production process claim as opposed to a product quality claim.

9.5.4 Occupational Health and Safety Assessment Specification (OHSAS) 18001

The Occupational Health and Safety Assessment Series (OHSAS) 18001 is an internationally applied British Standard (BS) for occupational health and safety management system. The BS OHSAS 18001²⁵ is a framework for an occupational health and safety management system and is a part of the OHSAS 18000 series of standards, along with OHSAS 18002. It can help the organization to put in place the policies, procedures and controls needed to achieve the best possible working conditions and workplace health and safety, aligned to internationally recognized best practice. It is a widely recognized and popular occupational health and safety management system.

The OHSAS standards determine the requirements related to health and safety management systems in order to enable an organization to control its risks and improve its performance. It is applicable to any organization from all types of business sectors and activities. Certification against OHSAS 18001 is aimed at the way a company has control over, and knowledge of, all relevant risks resulting from normal operations and abnormal situations.

Some of important points are as under;

- i. Improve the safety culture
- ii. Improved efficiency and consequently reduce accident and production time loss
- iii. Increased control of hazards and reduction of risks through the setting of objectives, targets and devolved responsibility
- iv. Demonstrate legal compliance
- v. Increase the reputation for safety and occupational health
- vi. Reduce insurance premiums
- vii. Integral part of a sustainability strategy
- viii. Demonstrate the commitment to the protection of staff, property and plant
- ix. Encourage more effective internal and external communication
- x. Business to business contract winner

²⁵ <https://www.bsigroup.com/en-GB/ohsas-18001-occupational-health-and-safety/>

9.5.5 Social Accountability (SA) 8000

The current global business environment is motivating organizations to consider the full social and ethical impacts of their corporate activities and policies. The companies enabled to prove a responsible approach to broader social and ethical issues would gain a vital competitive edge and inspire the confidence of stakeholders such as clients, investors, local community and consumers. The SA 8000 is the leading social certification standard for factories and organizations across the globe. It was established by Social Accountability International (SAI)²⁶ in 1997 as a multi-stakeholder initiative and a voluntary standard for workplaces and is currently used by businesses and governments around the world. The SA8000 is the first and strongest auditable workplace standard. The initiative is based on the well-known ISO 9001/ISO 14001 structure, conventions of the International Labor Organization (ILO), the Universal Declaration of Human Rights and the UN Convention on the Rights of the Child. The worldwide-recognized certification to the SA8000 standard involves the development and auditing of management systems that promote socially acceptable working practices bringing benefits to the complete supply chain.



Figure 24: Logo of SAI

The SA8000 is the first and strongest auditable workplace standard. The initiative is based on the well-known ISO 9001/ISO 14001 structure, conventions of the International Labor Organization (ILO), the Universal Declaration of Human Rights and the UN Convention on the Rights of the Child. The worldwide-recognized certification to the SA8000 standard involves the development and auditing of management systems that promote socially acceptable working practices bringing benefits to the complete supply chain.

The SAI is a non-governmental, international, multi-stakeholder organization dedicated to improving workplaces and communities by developing and implementing socially responsible standards. The SAI convenes key stakeholders to develop consensus-based voluntary standards, conducts cost-benefit research, accredits auditors, provides training and technical assistance, and assists corporations in improving social compliance in their supply chains. It partners with trade unions, local NGOs, multi-stakeholder initiatives, organic, fair trade, environmental organizations, development charities and anti-corruption groups to carry out research, training and capacity-building programs. Over the years, it has evolved into an overall framework that helps certified organizations demonstrate their dedication to the fair treatment of workers across industries and in any country.

The SA8000 measures social performance in eight areas important to social accountability in workplaces, anchored by a management system element that drives continuous improvement in all areas of the standard. It is appreciated by brands and industry leaders for its rigorous approach to ensuring the highest quality of social compliance in their supply chains without sacrificing business interests. The standard reflects labor provisions contained within international

²⁶ www.sa-intl.org

conventions. It also respects, complements and supports national labor laws around the world, and currently helps secure ethical working conditions for over two million workers.

Elements of the SA8000 Standard are; Child Labor, Forced or Compulsory Labor, Health and Safety, Freedom of Association and Right to Collective Bargaining, Discrimination, Disciplinary Practices, Working Hours, Remuneration and Management System

Regular revisions ensure its continuing applicability in the face of new and emergent social issues. Organizational buyers, independent codes of conduct, and private sector initiatives have all recognized SA8000's multi-sector applicability and responded to growing public interest by integrating SA8000 criteria into their compliance processes. Similarly, governments wishing to encourage and strengthen social performance in the workplace have created incentive programs specifically recognizing companies with an accredited SA8000 certification.

In addition to publishing SA8000 and supporting documents, the SAI offers a wide selection of resources to help organizations maintain and continually improve their social performance, including capacity building, stakeholder engagement, collaboration between buyers and suppliers, and the development of tools to ensure continued improvement. The SAI views independent accredited certification to the SA8000 Standard as a critical element contributing to the company's broader objectives of improving global labor conditions. The current version of the SA8000 Standard is SA8000:2014. Certifications to SA8000:2008 must be upgraded to SA8000:2014 by June 30, 2017.

9.5.6 Global Red Meat Standards (GRMS)

Global Red Meat Standard (GRMS)²⁷ is a scheme specifically developed for the meat industry. It focuses on critical areas affecting the maintenance of high meat safety requirements. The GRMS is ISO/IEC 17065 accredited and independently audited. Since, GRMS has been recognized by the Global Food Safety Initiative (GFSI), which drives equivalency between GRMS and other commercial standards recognized by GFSI.



Figure 25: Logo of GRMS

The standard specifically developed for the processes of slaughtering, cutting, deboning and sales of red meat and meat products. In contrast to other more generic food industry quality schemes, the GRMS has been tailored to the specific requirements that apply to the meat industry.

The standard comprises the entire productions chain and is, therefore, applicable to all aspects of transport, lairage, stunning, slaughtering, deboning, cutting and handling of meat and meat products. The Standard is available for implementation by all interested parties/meat producers within its scope.

The main focus of GRMS is on critical areas that affect the maintenance of high levels of meat safety rather than having a broad and general focus as in many of today's standards. The fact that GRMS has been specifically developed for the meat industry provides its customers with an invaluable tool for measuring a supplier's performance. In short the benefits of GRMS are:

- i. It covers similar core areas as other commercial standards, but is dedicated to meat production
- ii. It covers animal welfare, the working and external environments
- iii. Focuses on areas critical for maintaining high meat safety and quality
- iv. Links to the farm gate
- v. Provides detailed basis for assessing meat and meat products

²⁷ www.grms.org

9.6 Standards Set by National Organizations

9.6.1 Halal Certification

Halal certification emphasizes the production of meat as per Islamic Sharia laws (Please see Annex 14.6). The accredited Halal Certification Body (HCB) set the conditions for Halal/ Zabiha certification which are to be followed by the meat processing units in order to produce Halal meat for the consumers.

In its standards for Halal certification, certification agency will treat all producers and distributors equally, whether they are Muslim or Non-Muslim.

9.6.2 Animal Slaughter Control Act

Government of Pakistan has introduced the West Pakistan Animal Slaughter Control Act, 1963²⁸ for the regulation of slaughtering. Punjab province has implemented the same law as The Punjab Animal Slaughter Control Act 1963²⁹.

The Punjab Animal Slaughter Control Act 2016 amendments³⁰ are introduced by the Punjab Government in order to make this law more effective and according to needs of modern era. Basic purpose of this act is to prohibit the slaughter of certain animals and regulate the slaughter of all other animals. The amendments also include enhanced punishments for the violators.

According to these amendments, all the offences under this act are declared as non-bailable and cognizable. All the offences under this act be tried summarily. Further there are enhanced punishments and fines for those who violate the provision of this law. Overall these amendments are good step forward but Government need to implement them in true spirit. Even the best drafted laws are useless if there is no way to implement them and in Pakistan inefficient Police Force is the basic reason of failure of all the good laws.



Figure 26: A typical Halal Logo

²⁸ www.blncode.pitb.gov.pk

²⁹ www.punjablaws.gov.pk/laws/146.html

³⁰ www.punjabcode.punjab.gov.pk

9.6.3 Punjab Pure Food Regulations, 2018

Punjab Food Authority (PFA)³¹ is an agency of the provincial Government of Punjab that regulates food safety and hygiene. The PFA enforces food hygiene and quality standards as described in Punjab Pure Food Regulations 2018³² (Please see Annex 14.7 for section of PFA rules on hygiene and quality standards for meat and meat products). One of the main functions of PFA is to lay down science-based standards for food items and to regulate their manufacture, storage, distribution, sale and import to ensure availability of safe and wholesome food for human consumption. Punjab Food Authority has adopted the Pure Food Rules 2011 wherein standards of almost all type of food items have been described.

In order to make necessary amendment in the existing food standards, the scientific panel may, after due deliberations with the relevant industry and consumer representatives, make recommendations to the Food Authority on standards, products, procedures, processes and guidelines in relation to any technical aspect of the food.

³¹ www.pfa.gop.pk

³² www.pfa.gop.pk/wp-content/uploads/2022/11/PPFR-2018-PFA.pdf

10 Certifications and Procedure for International Standards

Certification (or registration) is the process when an independent and competent third party certifies that a product, service, system, process or material conforms to specific requirements. It is a commercially available service offered by certification bodies. Each certification is based on a certification criterion and scope. A certification body can be selected based on reputation, accreditation, operations, competence and experience in certification scope, audit approach and user friendliness in addition to cost.

The accreditation bodies may or may not be the part of government. The certifications benefit in terms of reduced cost of sales, lower risk of liability and improved overall performance.

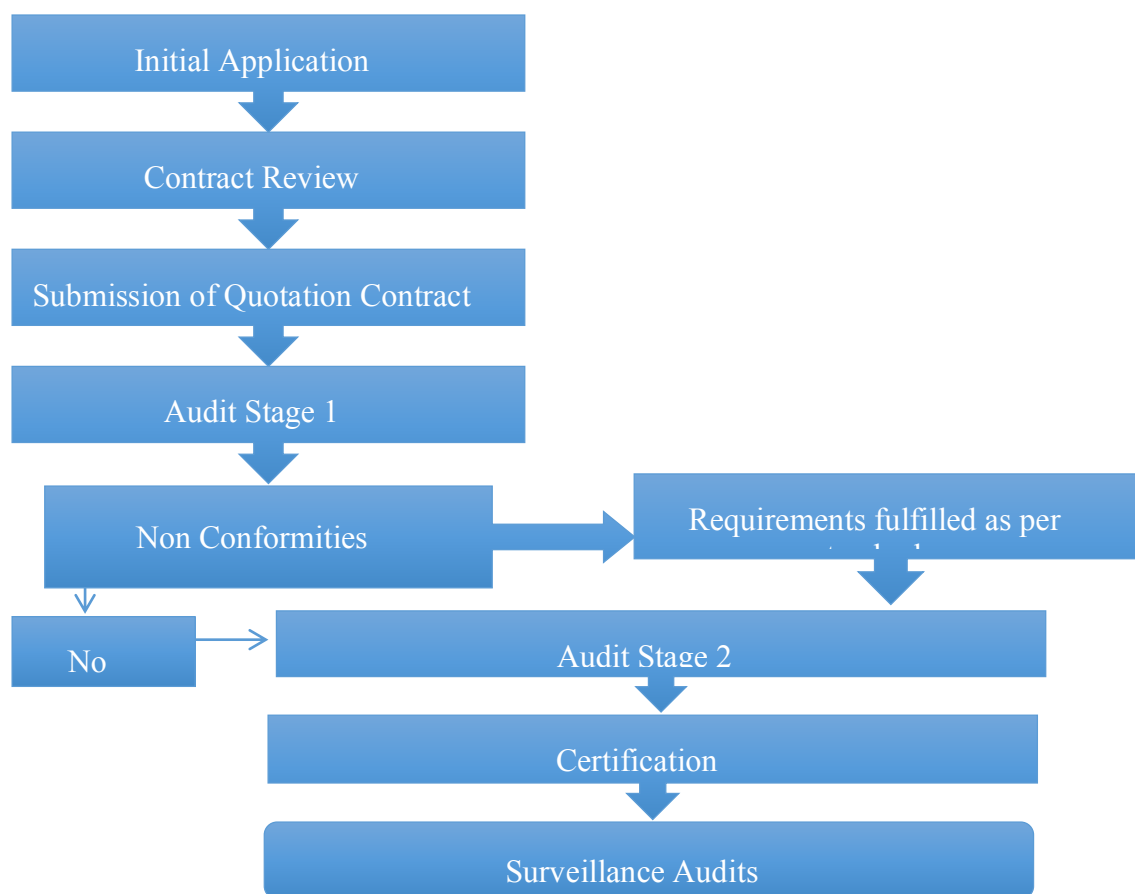


Figure 15 Process of Certification for International Standards

11 Frequently Asked Questions (FAQs)

1. How much time it takes to be certified?

It depends on certificate required and complexity of situation. Generally, 4 to 6 months are needed to complete the process of obtaining certification.

2. How much a certification costs to a company?

The accredited firm gives you the quotation of their services in regard of any certification considering the following factors; Size of the organization, Number of employees, Complexity of situation and Complexity of site.

3. Useful Links

- **All Pakistan Meat Processors and Exporters Association (APMEPA)**

Address: 177-B Johar Town, Gosha e Ahbab,
Lahore, Punjab.
Ph: (042) 35169450

- **Punjab Halal Development Authority**

Office: 18-Km, Multan Road, Shahpur Kanjran, Lahore, Punjab
Ph: 042-99333704-5
Email: info@phda.gop.pk

- **Pakistan National Accreditation Council (PNAC)**

Address: Ground Floor, 1-C Constitution Ave,
(opp. Prime Minister's Secretariat), G-5/2 G-5, Islamabad.
Ph: (051) 9222310

4. List the Halal Certification Bodies (HCB), recognized by PNAC

Following are some major accredited bodies and their addresses;

A: Bureau Veritas (BV), Pakistan (Pvt.) Ltd.

- **Karachi Office**

3rd Floor, PNSC Building, M.T. Khan Road,
Karachi, Pakistan
Ph: +92-21-35632531-9, Fax: +92-21-35632530

- **Lahore Office**

Plot # 37, 1st Floor Somia Ehsan Plaza, 2- Township, Lahore
Ph: +92 42 35122101-06

- **Islamabad Office**

189-A, Korang Road, Sector I-10/3
Industrial Area, Islamabad, Pakistan
Ph: +92 51 2719661-66
Email address: pakinfo@bureauveritas.com

Accreditation Scope: Halal Certification Body (HCB), PS 4992:2010 and the Accreditation Conditions and Requirements for HCBs

B: SGS Pakistan (Pvt.) Limited

H-3/3, Sector 5, Korangi Industrial Area, Karachi, Pakistan.
Ph: +92-21-35121388-95
Fax: +92-21- 35121386

Regional Office: SGS Pakistan Lahore
Plot # 7, Din Muhammad Town
19-Km off Multan Road Chung, Lahore, Pakistan
Ph: +92 42 3810 4139 41, +92 42 3751 5420
Website: www.sgs.com/en-pk

Accreditation Scope: Systems & Services Certification, Halal Certification Body (HCB), PS 4992:2010 and the Accreditation Conditions and Requirements for HCBs

C: Renaissance Inspection & Certification Agency (RI&CA) (Pvt.) Ltd.

D-13, Al-Hilal Society Opp. Askari Park, Karachi, Pakistan.
Ph: +92-21-34122278
Cell: +92-304-2225454, 333-3571770
Website: www.ri-ca.org

Accreditation Scope: Halal Certification Body (HCB), PS 4992:2010 and the Accreditation Conditions and Requirements for HCBs.

D: Punjab Halal Development Agency

Lahore Meat Complex, 18-Km, Multan Road, Lahore
Ph: +92-42-993-33704-5

Accreditation Scope: Halal Certification Body (HCB), PS 4992:2010 and the Accreditation Conditions and Requirements for HCBs

E: SANHA Halal Associates Pakistan

Flat No.02, Plot 10-C, 2nd Commercial Lane,
Zamzama DHA-V, Karachi, Pakistan
Ph: + 92-21-35295263 Mob. +92-341-3653656
Fax: +92-21-35295284
Email: Karachi@sanha.org.pk
Website: www.sanha.org.pk

Accreditation Scope: Halal Certification Body (HCB), PS 4992:2010 and the Accreditation Conditions and Requirements for HCBs

12 List of Accredited Labs (Pakistan)

- i. National Physical and Standards Laboratory (NPSL), Islamabad
- ii. Pakistan Council of Scientific & Industrial Research (PCSIR), Karachi
- iii. SGS Chemical & Environmental Laboratory, Karachi
- iv. Food & Biotechnology Research Centre (FBRC) PCSIR Labs Lahore
- v. BV Consumer Products Services Pakistan (Pvt.) Limited,
- vi. University Diagnostic Laboratory (UDL), UVAS, Lahore
- vii. WTO-Quality Control Laboratory, UVAS, Lahore
- viii. Centre for Environmental Protection Studies (CEPS), PCSIR Labs Lahore

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- iii. Livestock Census, 2006, MINFAL
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- v. Trade Development Authority of Pakistan
- vi. Scaling up Bovine Meat Exports of Pakistan: A review of Opportunities in the Bovine Meat Sector. 2021- The Pakistan Business Council
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- xxii. Pakistan's Agro Based Exports & Sanitary and Phyto-Sanitary Compliance: A Joint World Bank and UNIDO Report.
- xxiii. <http://weeklypulse.org/details.aspx?contentID=1073&storylist=16>
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- www.mnfsr.gov.pk
- www.tdap.gov.pk, Trade Development Authority of Pakistan
- www.trademap.org
- www.sgs.com, Trusted Food Safety, Quality and Sustainability Solutions
- www.cbi.nl
- www.meatradenewsdaily.co.uk
- www.iso.org
- www.faostat.fao.org, Food and Agriculture Organization of United Nation
- www.apo-tokyo.org, Productivity Organization
- www.usda.gov, United States Department of Agriculture
- www.apeda.gov.in, Agriculture and Processed Food Products Export Department Authority
- www.stuffspec.com, Animal Quarantine Department of Pakistan
- www.access.gpo.gov, US Govt. Publishing Office/Department of Agriculture
- www.thomas.loc
- www.haccpalliance.org
- www.cdc.gov
- www.asas.org, American Society of Animal Science
- www.meatpoultry.com
- www.nalusda.gov, The National Agricultural Library
- www.usda.gov, U.S. Department of Agriculture (USDA)
- www.aphis.usda.gov, USDA's Animal and Plant Health Inspection Service (APHIS)
- www.fsis.usda.gov, USDA's Food Safety and Inspection Service
- www.nih.gov, National Institutes of Health (NIH)
- www.os.dhhs.gov, U.S. Department of Health and Human Services
- www.cdc.gov, CDC's Division of Bacterial and Mycotic Diseases
- www.gpoaccess.gov, U.S. Code of Federal Regulations
- www.epa.gov, U.S. Environmental Protection Agency (EPA)
- www.ific.org, International Food Information Council (IFIC)
- www.ift.org, Institute of Food Technologists
- www.apha.org, American Public Health Association
- www.fao.org, Food and Agriculture Organization of the United Nations
- www.who.int, World Health Organization
- www.foodcom.com
- www.globalgap.org

14 Annexures

14.1 Meat Traceability by Codex

The Codex Alimentarius Commission defines Traceability as “the ability to follow the movement of a food through specified stage(s) of production, processing and distribution”. Livestock identification and meat traceability systems were introduced in countries as a reaction to the Bovine Spongiform Encephalopathy (BSE) or ‘Mad Cow Disease’. A good traceability system provides accurate information on the origin, sex, age, breed, movements and records veterinarian treatments an animal received. Traceability systems are important tools to prevent the spread of animal diseases and to enhance biosecurity in general.

Animal identification and livestock/meat traceability are not themselves food safety, animal disease prevention or quality assurance programmes, but they facilitate public health, veterinary public health and animal health interventions. Food and Agriculture Organization (FAO) through its contribution to the Codex Alimentarius commission is involved in inclusion of traceability within international standards. Common animal identification options includes; Paint/spray markings, Hot/Cold branding, Tattoo, Collar tag (neck band), Plastic/metal ear tags, Microchip (RFID-Radio frequency identification device).³³

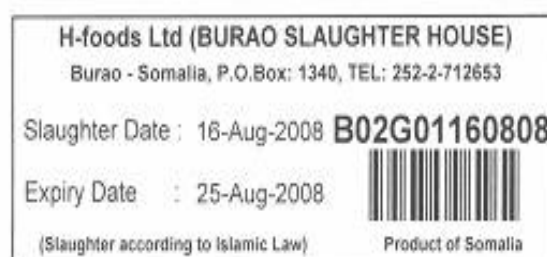


Figure 28: Typical Tag for Halal Slaughtering

Within the abattoir, meat traceability requires the clear identification of the live animals through to meat products. Possible meat identification options include; Paper/plastic Tags, Ink stamping, Bar code labels (see in Figure) and Microchip (RFID).

Costs of the identification and thereby traceability systems vary hugely, depending on the options applied and the level of detail required. Functioning traceability schemes are often a precondition for meat producing countries to enter export markets. Hence traceability is not only a health issue but has also become a marketing tool. The goal is to achieve transparency in the meat chain “from farm to fork”.

³³ Source Figure: FAO Projects in Somalia

14.2 Meat Quality Standards

Meat quality is normally defined by the compositional quality (lean to fat ratio) and the palatability factors such as visual appearance, smell, firmness, juiciness, tenderness, and flavour. The nutritional quality of meat is objective yet "eating" quality as perceived by the consumer is highly subjective.

i. Visual Identification

The visual identification of quality meat is based on colour, marbling and water holding capacity. Marbling is small streaks of fat that are found within the muscle and can be seen in the meat cut. Marbling has a beneficial effect on juiciness and flavour of meat. Meat should have a normal colour that is uniform throughout the entire cut. Beef, lamb, and pork should also have marbling throughout the meat.

ii. Smell

Another quality factor is smell. The product should have a normal smell. This will be different for each of the species (i.e. beef, pork, chicken), but should vary only slightly within the species. Any rancid or strange smelling meat should be avoided.

iii. Firmness

Meat should appear firm rather than soft. When handling the retail package, it should be firm, but not tough. It should give under pressure, but not actually be soft.

iv. Juiciness

Juiciness depends on the amount of water retained in a cooked meat product. Juiciness increases flavour, helps soften meat - making it easier to chew, and stimulates saliva production in the mouth. Water retention and lipid content determine juiciness. Marbling and fat around edges helps hold in water. Water losses are from evaporation and drip losses. Meat aging can increase water retention and therefore increases juiciness.

v. Tenderness

Has been linked to several factors, such as the animal's age, sex or the muscle location. One important way to tenderize meat is by aging. Carcasses are aged by holding them at refrigeration temperatures for extended periods of time after slaughter and initial chilling.

vi. Flavour

Flavour and aroma are intertwined to create the sensation the consumer has during eating. These perceptions rely on the smell through the nose and on the sensations of salty, sweet, sour and bitter on the tongue. Meat flavour is affected by type of species, diet, cooking method and method of preservation (e.g. smoked or cured).

14.3 Good Hygienic Practices (GHP) at Meat Processing Unit

The GHP includes all practices regarding the conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain (Based on Codex definition of Food Hygiene). The GHP generally comprise of following steps;

- i. Process control should reflect an integrated strategy for control of hazards throughout the food chain, with information available from primary production and pre-slaughter being taken into account wherever possible and practicable.
- ii. All bodies of animals should be subjected to post-mortem inspection that is science- and risk based, and is tailored to the hazards and/or defects that are reasonably likely to be present in the bodies of animals presented for inspection.
- iii. The competent authority should determine the procedures and tests to be used in post-mortem inspection, how that inspection is to be implemented, and the necessary training, knowledge, skills and ability required of personnel involved (including the role of veterinarians, and personnel employed by the establishment operator).
- iv. Post-mortem inspection should take into account all relevant information from primary production, ante-mortem inspection, and from official or officially-recognized hazard control programmes.
- v. Post-mortem judgments should be based on: food-borne risks to human health, other human health risks, e.g., from occupational exposure or handling of meat in the home, food-borne risks to animal health as specified in relevant national legislation, and suitability characteristics
- vi. Performance objectives or performance criteria for the outcome of process control and postmortem inspection activities should be established by the competent authority wherever practicable, and should be subject to verification by the competent authority.
- vii. Where appropriate, microbiological testing, for verification purposes, should be included in meat preparation and manufactured meat HACCP plans.
- viii. Such testing should be relevant to the type of product and the likely risks to consumers, including vulnerable sub-populations.
- ix. Competent bodies or competent persons may be engaged by the establishment operator to undertake prescribed process control activities, including ante and post-mortem inspection, as approved by the competent authority.
- x. Handling of Ready-to-Eat (RTE) products up until the point of sale to the consumer should ensure that there is no contact with non-RTE products, and any other exposure to potential sources of microbiological contamination is minimized to the greatest extent practicable
- xi. Voluntary or officially recognized quality assurance (QA) systems may be implemented by the establishment operator where they enhance meat hygiene activities, and they may be taken into account in the verification of regulatory requirements by the competent authority.

14.4 Disease Free Zone (DFZ) Approach for FMD-Free Status

A zoning approach is the process to establish part of a country to progressively control animal diseases, and the recognized Disease Free Zones (DFZ) is useful for encouraging smooth international trade in animals and animal products. Establishment of DFZ is supported by effective veterinary legislation, transparent and timing disease reporting systems, surveillance systems based on the epidemiological evidence, strengthening veterinary services including capacity building, collaboration with all the stakeholders including industry and international coordination. The FMD is selected for discussions of a zoning approach in the tropics, as the disease is so common and important for the livestock sector and international trade.

Infectious animal diseases, especially trans-boundary animal diseases that are transmissible from one country to another, are a major constraint for the development of the livestock sector and provide indirect economic effect on trade in animals and animal products. In order to control those trans-boundary animal diseases, various measures are required including the system of transparent and timing disease notification, effective regulatory measurements, and the strengthening of veterinary services for capacity building in diagnosis and surveillance systems and securing resources. Adoption of zoning will reduce negative economic impacts of an outbreak compared to the situation without the concept of zoning, and produce substantially smaller losses to the livestock sector. A zoning approach supported by regulatory services is an important and efficient control measure of animal diseases that are so often affecting smooth trade and resulting in the spread and prevalence of diseases regionally or internationally.

i. Zoning Approach for Animal Disease Control

Zoning system is one of the most important processes to establish part of a country to progressively control animal diseases and consequent eradication. The recognized animals from DFZ are useful for smooth international trade as live animals and animal products, with a view to defining geographical areas of different animal health status within its territory. The type of DFZ where the absence of the disease under consideration has been demonstrated by the requirements prescribed in the international standards is declared by OIE. A 'Free Zone' is usually recognized as a lesser danger for an importing country.

ii. Requirements for DFZ

General requirements for zoning are applied to a specific animal disease such as FMD. Different rules need to be appropriately developed for each disease for which zoning is applied, as disease conditions differ in the epidemiology of the disease, environmental factors, and application of surveillance and control measures. The size and delineation of a zone need to be decided based on the broader concept of epidemiology of the disease by the national veterinary authorities. The basic requirements for the zone are;

- i. Records of regular and prompt animal disease reporting

- ii. Regulatory measures for the prevention and control of both FMD and its virus infection as well as contingency plans.
- iii. The system for preventing the entry of the virus
- iv. Documentation that the country has a system of intensive and frequent surveillance for FMD in DFZ.

The procedures required for declaring a DFZ include the following elements:

- i. National transparent animal disease reporting system in a regular and prompt way
- ii. Effective disease surveillance system
- iii. Disease should be notifiable
- iv. Properly functioning veterinary organization with access to an adequately equipped and effective laboratory for a good surveillance system
- v. Veterinary authorities to accurately specify the delineations of the zone, to describe how the boundaries will be controlled
- vi. Regulatory measures on FMD prevention in the free zone to be taken in the event of a disease outbreak

Importation of animals and animal products from other parts of the country or from countries where the disease exists into DFZ should take place through an official quarantine station located in the surveillance zone, under the supervision of the veterinary services. The strong legislation needs to empower veterinary authorities to enforce disease control measures. The establishment or modification of veterinary legislation to provide strict controls, however, should be feasible for all stakeholders concerned.

iii. International Verification of DFZ by OIE

The veterinary services of each country need to develop and document appropriate procedures and standards for the implementation and management of animal health measures and international certification activities. They may be related to;

- Programming and management of activities including certification
- Prevention and control of disease outbreaks
- Risk analysis, epidemiological surveillance and zoning
- Inspection techniques
- Diagnostic tests
- Border controls and import regulations, etc.

With regard to the importation of commodities from DFZ, importing countries are requested to recognize the existence of this zone and accept the application of the appropriate measures recommended internationally, corresponding to the animal status of the zone.

iv. DFZ Supporting Systems - Disease Surveillance and monitoring systems

The zoning concept should be supported by many factors including veterinary mutual trust and highest ethical principles throughout the import/export procedures. International trade depends on a combination of factors without incurring unacceptable risks to health. Surveillance and monitoring systems as the base for a zoning approach should be supported by the science of epidemiology and incorporate

- Agent surveillance and/or monitoring (including clinical or pathological examination of animals)
- The identification of pathogens and the detection of immunological (or other) evidences of previous exposure of animals to pathogens)
- Description of host population characteristics (including genetics, animal demographics with age, sex, breed distribution, etc.)
- Environmental assessment (including meteorological data, vector population distributions, etc.)
- Livestock economics, slaughterhouses and markets, and epidemiological research (including patterns of animal movements and disease spread).

The veterinary services need to develop appropriate measures such as prevention and control of disease outbreaks, supervision of the boundaries and animal movement, risk analysis, epidemiological surveillance, diagnostic tests, and preparation/production/registration/control of biological products, border control and import regulations.

v. Animal Identification, Public Awareness and Resources

An identification system with the potential of tracking livestock movements is the basis of systems for epidemiological surveillance for animal diseases. Domestic checkpoints and international quarantine stations are an effective measure to prevent introduction of animal diseases and to keep credibility of the veterinary services in the case of export. Animal health measures need to be strongly supported by the full understanding of all stakeholders from production to consumption. For this, it is important to encourage the livestock sector and other related organizations to be involved in animal health improvement activities and to represent their views on zoning approaches. The strong cooperation of neighboring countries and trade partners is required to adopt harmonized approaches to effective animal movements. Such cooperation also includes contributions by international/regional reference laboratories for technical supports including

14.5 Table of Content: CAC/RCP 58-2005

CAC/RCP 58-2005

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CODE OF HYGIENIC PRACTICE FOR MEAT¹

CAC/RCP 58-2005

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¹ This Code supersedes the following Codex Codes of Practices: Recommended International Code of Hygienic Practice for Fresh Meat (CAC/RCP 11-1976, Rev. 1-1993); Recommended International Code of Hygienic Practice for Game (CAC/RCP 29-1983, Rev. 1-1993); Recommended International Code for Ante-Mortem and Post-Mortem Inspection of Slaughter Animals and for Ante-Mortem and Post-Mortem Judgement of Slaughter Animals and Meat (CAC/RCP 41-1993); Recommended International Code of Hygienic Practice for Processed Meat and Poultry Products (CAC/RCP 13-1976, Rev. 1 (1985); Recommended Code of Hygienic Practice for Poultry Processing (CAC/RCP 14-1976); Recommended International Code of Practice for the Production, Storage and Composition of Mechanically Separated Meat Intended for Further Processing (CAC/RCP 32-1293).

Adopted in 2005. Editorial amendments: 2013.

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14.6 Halal Meat

Halal is an Arabic term designating any object or an action which is permissible to use or engage in, according to Islamic law and custom. It is the opposite of 'Haraam'. The term is widely used to designate food seen as permissible according to Islamic law.

"Anything permissible under Islamic law, in contrast to 'Haraam' or forbidden". This includes not only dietary laws and manners but also human behavior, speech, communication, clothing, conduct etc. however, in Non-Arabic speaking countries, the term is most commonly used in the narrower context of just Muslim dietary laws, especially where meat and poultry are concerned.

A variety of substances are considered as Haraam (harmful) for humans for consumption, therefore, forbidden as per referenced Quranic verses;

- i. Pork meat i.e. flesh of swine {Quran 2:173}
- ii. Blood {Quran 2:173}
- iii. Animals slaughtered in the name of anyone but God. All that has been dedicated or offered in sacrifice to an idolatrous altar or saint or a person considered to be "divine". {Quran 2:173} {Quran 5:3}
- iv. Carrion (carcass/meat of dead animal){Quran 2:173}
- v. An Animal that has been strangled or beaten to death, or killed by a fall, or gored to death, or savaged by a beast of prey, except that which you may have slaughtered while it was still alive (Quran 5:3)

14.7 Meat and Meat Products (The Punjab Pure Food Regulations 2018)

- This category includes all types of halal meat (beef, mutton), poultry (chicken, duck, turkey ostrich etc.), and game (quail etc.), rabbit products, in pieces and cuts or comminuted, fresh and processed. All kinds of meat and meat products including poultry and game shall make compliance to the standing Codex Alimentarius Commission Standards according to their corresponding notes and quality criteria prescribed in annexures (08.1, 08.2, 08.3 and 08.4). Nutritional labeling shall be in the descending order where applicable.
- Meat or fresh meat means the edible part of the skeletal muscle of a halal animal (including poultry and game), other than fish, that is normally used for human consumption and that (animal) was healthy at the time of slaughter and shall be slaughtered in accordance with Islamic injunction. It may contain accompanying and overlying fat together with portions of bone, skin, sinew, nerve and blood vessels that normally accompany the muscle tissue and are not separated from it in the process of dressing. Animal shall be free from disease (any abnormality affecting safety and or suitability as specified in the Annexure (08.1) and (8.2). For the purposes of these rules, lean meat shall be meat from which the overlying fat has been removed. It shall not contain more than 10 % of total fat and 75 % water.

- The products of this category shall conform to the following standards;

Kind of Meat	Meat Color	Fat Color	Medulla Color
Beef	Red velvet with violet stripes	White	Grey with violet shade
Mutton	Grey-brown with stripes	Clear White	Grey-Yellow

- Meat Product shall not contain any kind of added hormones. Examples of hormone may include but not limited to
 - a) Diethylstilbestrol [3,4-bis (p-hydroxyphen)-3-hexene]
 - b) Hexoestrol [3, 4-bis (p-hydroxyphenyl)-n-hexane]
 - c) Dienoestrol [3, 4-bis (p-hydroxyphenyl)-2, 4-hexadiene]
- Chilled meat means the meat that has been maintained in a wholesome condition at a temperature between minus 1°C to 10°C and includes frozen meat that has been thawed at a temperature of not more than 5 °C.
- Frozen meat, means meat that for one continuous period from the time of preparation for sale has been maintained at a temperature below minus 18°C and shall not have been thawed before sale. The temperature of frozen meat at any time does not exceed minus 120° C.

- Minced meat means the fresh, chilled, or frozen meat that has been disintegrated by mincing or chopping, the meat shall only be from Halal animal source. It shall not contain meat of different animal origin and shall be free from any visceral organs and fat shall not be more than 10 %.
- Meat paste means paste, which includes meat spread, prepared from Halal meat, cooked or uncooked, with or without other food. It shall be readily spreadable product with a meat content of not less than 70 % in the form of finely divided meat and not less than 60 % of the meat content shall be lean meat. It shall be free from every particle of bone, gristle, grittiness, objectionable flavour, pathogenic microorganism or bacterial toxins or any harmful substance and shall be pleasant in taste and smell. It shall conform to the following standards.
 - ✓ Protein Not less than 18 %
 - ✓ Fat Not more than 12.5 %
 - ✓ Ash Not more than 2.5 %
- Sausages mean the products, which are cooked ground, chopped or comminuted meat with seasoning or cured and formed. Meat shall be fresh and obtained from healthy Halal animals. It shall be free from clots, bone, skin, gristle, serous membranes, coarse connective tissue, pathogenic organisms, bacterial toxins and any harmful substance. It shall be stuffed in natural / artificial casing. It shall contain not less than 60 % of meat content to be lean meat and shall also conform to the following standards: -
 - ✓ Moisture Not more than 4 times the percentage of protein
 - ✓ Protein Not less than 18 %
 - ✓ Fat Not more than 12.0 %
 - ✓ Ash Not more than 2.5 %
- “Meat with other food” means the product prepared from meat with other food with or without vegetables, cereals, edible fat/oils, seasoning, spices, salt etc. Without soup it shall conform to the following standards: -
 - ✓ Meat Not less than 35 %
 - ✓ Fat Not more than 12.5 %
- “Shami Kabab” means a product prepared from meat with gram flour and with or without seasoning, spices, salt and coated with egg paste and fried with edible fat/oil. It shall contain not less than 50 % of meat.
- Seekh Kabab, Qeema Ki Tikki means a product prepared from meat with seasoning, spices, salt, edible fats/oil. The meat used shall be free from gristle, bone, skin, clots, and serous membrane, coarse, connective tissue. It shall contain not less than 70 % in the form of

finely divided meat and not less than 60 % of the meat content shall be lean meat. It shall conform to the following standards;

- ✓ Protein Not less than 18 %
- ✓ Fat Not more than 12.5 %
- Burger Patties (beef, mutton, chicken) means the minced meat product comprising a minimum of 80 % meat with or without the addition of cereal, spices, salt, herbs, sugar, vinegar, sodium caseinate or other foodstuffs made into a flat shape, fried and sandwiched with bread roll. The weight of bread shall not be more than the weight of burger. Burger shall contain not less than 18 % protein.
- Meat extracts, meat essences and meat juices means the product obtained by extracting fresh meat with boiling water and concentrating the liquid by evaporation after removal of the fat. It shall conform to the following standards;
 - ✓ Total solid matter. Not less than 75 %
 - ✓ Sodium chloride. Not more than 12 %
 - ✓ Fat. Not less than 0.6 %
 - ✓ Nitrogen. Not less than 8 %
 - ✓ Nitrogenous compounds. Not less than 40 %
- “Hunter Beef” means a product prepared from a clean, wholesome beef meat obtained from a healthy animal free from disease and sickness. It shall be properly cured with sodium chloride, vinegar or lime/lemon juice and with or without curing mixture (sodium nitrite, sodium nitrate) and baked to give it an acceptable texture. It shall be free from pathogenic organisms, bacterial toxins and any deleterious substance. It shall conform to the following standards;
 - ✓ Moisture. Not more than 15 %
 - ✓ Protein. Not less than 35 %
 - ✓ Fat. Not more than 10 %.
 - ✓ Sodium chloride. Not more than 5 %
 - ✓ Lead. Not more than 2 mg/ Kg
- Meat cubes (Chicken, Mutton, beef) means a product prepared from hydrolyzed protein, meat stock, flour, yeast extract, caramel, salt, meat extract, meat fat, desiccated meat, spices and seasoning and other flavouring. It shall conform to the following standards;
 - ✓ Moisture. Not more than 5.0 %
 - ✓ Nitrogen Not less than 5.0 %
 - ✓ Ash. Not more than 32 %
 - ✓ Salt Not more than 27 %

✓ Fat. 3 –6 %

- Canned meat shall be prepared from the meat of Halal healthy animals free from disease and sickness, slaughtered in accordance with the Islamic Injunction. The canned meat shall consist of meat, with its accompanying and portions of its overlying fat, in moderately sized pieces free from portions of head, neck, skin, shin, hock, blood bone, skirt, sinew, hard gristle, glands and viscera etc. It shall be packed in clean containers that are processed and hermetically sealed by heat to ensure preservation. It may contain water, salts, condiments, spices and permitted preservatives, flavouring substances. A can shall contain lean meat of one kind of animal only and not less than 90 % meat.
- Meat canned with other food” means the meat product prepared from meat of Halal healthy animals free from disease and sickness, slaughtered in accordance with the Islamic Injunctions, with other food, and processed. The meat used shall consist of fresh skeletal muscle of animals with its accompanying and portions of its overlying fat, in moderately sized pieces free from portions of head, neck, skin, shin, hock, blood, bone skirt, sinew, hard gristle, glands and viscera etc. It shall be packed in clean containers that are hermetically sealed and processed by heat to ensure preservation. It may contain permitted preservatives and flavouring substances. It shall contain lean meat of one kind animal only and not less than 40 % of meat. There shall be written on the label of a package containing canned meat with other food the words “meat with (state the name of other food)” or any other word or words having the same or a similar effect.
- Corned beef means the product prepared from boneless meat of carcass of bovine animals including buffalo meat, which have been subjected to ante mortem and postmortem inspection. The product shall be uniformly cured with edible common salt and sodium and / or potassium nitrite. The product may contain ascorbic acid, sodium ascorbate or isoascorbate acid/ sodium iso ascorbate singly or in combination not exceeding 500 mg/kg. The product may also contain sucrose, dextrose, lactose, maltose and glucose syrup including corn syrup. The product shall be packed in hermetically sealed containers which shall not show any change of color on incubation at 350C for 10 days and 550C for 5 days. The product shall be in the form of a solid pack capable of being sliced. The product shall be free from any added colour and natural and artificial flavour. The product shall be clean and substantially free from staining and contamination from the container, foreign matter and objectionable odour. Microbial quality should meet the criteria given in annexure (8.2).
- Particular labeling requirements of meat and meat products. There shall be written on the label of a package containing meat and meat product, in not less than 10-point lettering.

14.8 Important Livestock Breeds



Figure 29: Lohi Sheep (Thin-tailed breed)



Figure 30: Baluchi Sheep- Fat-tailed breed



Figure 31: Brela Camel



Figure 32: Neeli Ravi Buffalo



Figure33: Dhanni Breed Cow



Figure34: Sahiwal Breed Cow



Figure 35: Beetal Breed Goat



Figure 36: Nachi Breed Goat