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## **EDITORIAL**

All praise to be Almighty Allah (SWT) and Darood-o-Salam on last of his prophets , Muhammad (SAWSM) and his companions and all his family members .Alhamdullilah , it is a matter of satisfaction that his Volume No.XVI, No.16, Dec-2024, in hand is now ready for publishing (both print and online).

A total of ten articles were received (enlisted No.147 thru No-156, cleared by the PJKLSc Editorial board and duly cleared by respected referees) . One of the articles received from Animal Quarantine Deptt.(AQD) Karachi comprising 20 pages and other one comprising 13 pages but well informative , for the first time based on Exports of Livestock , by-products and import data.,Cleared by various Annual Quarantine Officers, AQOs, of various stations as well as ,AQD HQ Karachi,the real potential of Livestock exposure to all stake holders which is appreciated at all forums.

Universities and Institutions involved in Research at Peshawar ,Lahore ,Quetta, PRI-RWP and Karachi.VRIs/ with Livestock and Dairy Developmentt Deptts (LDDDS) are reported to be anxiously waiting for our yearly publications, specially the graduate students at MSc Hons/M.phil and Ph.D level are concerned with this effort , as a reference document, for their thesis, Research and write-ups.

The Editorial Board and all Referees have always appreciated the authors contributions and confidence in our efforts ; myself as a team member, appreciate the sustained efforts in completing the composing, editing and timely mailing the articles to authors as well as to and from the respected references.

Comments, suggestions and research based write-ups (articles) sent to us, shall highly be appreciated .

Dr Muhammad Hafeez  
Chief Editor

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## LIVESTOCK AND BY-PRODUCTS EXPORTS FROM PAKISTAN DURING THE FY 2022-23

Zargham Nawaz Butt<sup>1</sup>, Zain ul Abideen<sup>2</sup> and Maqbool Ahmad<sup>3</sup>

### ABSTRACT

Livestock play an important role in rural economy of the Indo-Pak since very beginning have significantly contributed to rural to urban transition by complementing income opportunities along with cash crops. Over the years the small livestock holders have been replaced by corporate farms and various avenues in the form of industries developed that contribute significantly, in value addition of livestock based commodities ensuring its ample availability for local population and food security of the country. In addition to that value addition of livestock originated commodities played a contributory role in export portfolio of Pakistan resulting into foreign exchange earnings thus creating export market opportunities as well as job creation locally. Pakistan animal origin exports have shown a significant increase over the years, boosting certainty and confidence of its trading partners to its regulatory control and oversight and opening of new vistas of trade at various destinations. This research cum investigative article produced and compiled by Animal Quarantine Department showcases the export of the livestock and its by-product during the financial year 2022-23. The data also reflect export health certification of animals and animal origin consignments by Animal Quarantine Department (AQD) and collection of Non-Tax Revenue (NTR) receipts on behalf of Government of Pakistan. The article ends with the summarized conclusions and positive recommendations for the concerned stakeholders.

**key words :** Livestock , export , potentials, products, by products, Pakistan

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### INTRODUCTION

Animal Quarantine Department (AQD) is an attached department of Ministry of National Food Security and Research that was established under the “Pakistan Animal Quarantine (Import and Export of Animals and Animal Products) Act, 1979”. The department performs its regulatory functions for the implementation of Pakistan Animal Quarantine (Import and Export of Animals and Animal Products) Rules, 1980.

Animal Quarantine Department serves as an executive veterinary authority of the Federal Government and has the prime responsibility to regulate import and export as well as quarantine of animals and animal products, in order to prevent the introduction and spread of exotic diseases. AQD is also declared as the National Sanitary and Phytosanitary (SPS) Enquiry point for animals and animal products under World Trade Organization’s SPS agreement to address the queries of member states.

The department has its headquarters at Karachi and has operational presence all across the country at point of entry/ exits of international trade at Lahore, Islamabad,

- 
- Veterinary Officers at Animal Quarantine Department, Karachi<sup>1,2</sup>
  - Director, Animal Quarantine Department, Karachi, Pakistan<sup>3</sup>

Peshawar , Quetta, Multan , Sialkot, Gilgit , Kharlachi and Ghulam Khan .

The core functions of the department are to;

- i. Regulate import and export of animals and animal products under Pakistan Animal Quarantine Act, 1979 and Rules, 1980 by providing certification services of uniform standard to meet the international trade requirements
- ii. Inspection of the consignments at the points of entry/exit to prevent the introduction and spread of diseases
- iii. Serves as National SPS enquiry point by observing WTO, European Union and other trading-partners requirements during import/export of animals and products of animal origin
- iv. Conducts regular inspection of processing units to check chances of hazardous contaminations and to ensure food safety of export consignments
- v. Registration and follow up inspections of different processing units e.g. slaughterhouses, animal casing units, poultry units, dairy processing units, bone processing & gelatin producing units, by observing international requirements and trade standards to ensure food safety

This research and progress oriented article is prepared to the format of Pakistan Journal of Livestock Sciences (pakjlsc) an international journal, Regd (CE-PJLSc2009) both online and Prints by ISSN, duly encoded and to provide an updated picture of AQD export regulation activities for the year 2022-23 respectively supported with the fresh data on exports only of livestock and its by-products to our research students academia and planners along with progressive farmers and traders in this sector of Pakistan to have a glance/ look of export activity of our country for the year 2022-23 to identify potential areas of improvement and to explore business potential.

Animal Quarantine Stations (AQS) are the field operational entities that provide trade statistics of animals/ animal origin commodities to AQD headquarters at Karachi that is compiled and reported to Livestock Wing and Economic Wing of M/o. National Food Security and Research for strategic policy formulation. This report is limited to the FY 2022-23, however the effort has been made to summarize the information under various sub-headings and tabulated for the convenience of all concerned:-As per the Pakistan Economic Survey of 2022-23, estimated population recorded based upon inter census growth rate of Livestock Census 1996 & 2006 was as follows;

Livestock population of recent years

Species	2020-21	2021-22	2022-23
Cattle	51.5	53.4	55.5
Buffalo	42.4	43.7	45.0
Sheep	31.6	31.9	32.3
Goat	80.3	82.5	84.7
Camel	1.1	1.1	1.1
Horses	0.4	0.4	0.4
Asses	5.6	5.7	5.8
Mules	0.2	0.2	0.2

The estimated milk production calculated ( in 000 tons) during the financial year 2022-23 was 67,873 from which 54,707 transitioned into human consumption. The gross meat production (in 000) tons was 5,504 having share of beef as (2,544), mutton as (799) and poultry as (2,160) respectively.

Poultry bird population including domestic as well as commercial, was recorded as 1,887 million Nos, Day old chicks 1,813 million Nos, Eggs 23,819 million Nos and poultry meat production as 2.16 million tons. The production of milk, meat, products namely hides /skins, bone and bone products, animal casing etc. are available in the ANNEXUR-1(also available online, PESR- [www.finance.pk](http://www.finance.pk) )

Livestock based exports are now an established fact that was also proposed in the books (Muhammad Hafeez (2008), (2011) and (2013). Investment in Livestock Sector: A Real Business in Pakistan, when explored through exported items for recent year 2022-23, the real potential is observed and prospects of increasing further in future.

This research cum investigative article is confined only to the exported items related to livestock , as detailed below subjected to AQD export certification, that ensured the trade of healthy/ disease free livestock and livestock products from Pakistan to different friendly and Muslim brotherly countries and the quantum of export appears to be increasing after every passing year. This increased volume of exports reflects the real interest of our exporters/traders of livestock products.

The role of private enterprises, in the growth of livestock sector, is commendable that enables the sustainably in rearing cattle, buffaloes, sheep, goats and poultry for national consumer population as well as to the global export markets fetching foreign exchange.

The provincial as well as Federal Govt. have established 132 Business Facilitation Centers (BFCs) that are functional and promoting ease of doing business thus creating an enabling environment for private sector lead growth.

Gulf region is the major market of Pakistan's meat exports owing to huge Pakistani diaspora residing in Gulf countries. By-products of animals and poultry are mainly exported to EU member countries (animal casing and gelatin), South East Asia and Far East Asia.

#### **(A) Live Animals Exports**

Export of live animals is banned from 01<sup>st</sup> October, 2013 under an Economic Coordination Committee decision to ensure ample availability of raw material for value added livestock processing sector like leather industry.

However, a few diplomatic consignments of live animals were exported from Pakistan to Gulf Dignitaries based upon brotherly relations. The live animals

exported from the country namely Cattle, Buffalo, Calves, Camels, Sheep/Goat as recorded cumulatively were 1,310 for which 11 export health certificate issued and amount of Rs. 0.440 million collected for the year 2022-23. 739 pets were export certified by issuance of 722 certificates, generating a Non-Tax Revenue (NTR) receipt of Rs. 0.129 million as shown in the table No. 01, below:-

#### **(B) Poultry related exports**

- (i) Poultry birds (Culled breeders of layers and broilers) were exported to the tune of 5,184,250 (Nos.) as were exported in the year 2022-23 and the Nos. of export health certificates issued were recorded as 3,252 respectively with the non-tax revenue collection of Rs. 7.258 million, as laid down in the table No. 02, below.
- (ii) Simultaneously fancy birds were exported to the tune of 261,432 (Nos.) in the year 2022-23. The export health certificates issued to these consignments were 175 with revenue receipt collection of Rs. 0.410 million, for the year, as laid down in the table No. 02, below.
- (iii) Day Old Chicks were also subjected to animal health inspections followed by export health certifications. A total of 10,110,800 No of day old chicks were exported in 590 export consignments with total receipt collection of Rs. 1.76 million, as laid down in the table No. 02, below.
- (iv) Table eggs and Hatching eggs both were also subjected to health inspection when exported. During FY 2022-23, 605,278,012 Nos; of table eggs were export certified in 1,744 consignments and 38,878,445 Nos; of hatching eggs were regulated in 273 export consignments, with total non-tax revenue collection of Rs. 1.347 million

#### **(C) Meat related export items**

Three kinds/types of meat was subjected to health inspections, consignment fulfilling the food safety and sanitary requirements of the importing countries, certified for exports included (i) mutton ,(ii) beef and (iii) camel meat (either in fresh chilled or frozen form).

(i)-Mutton meat was exported to the quantum of 7,070 metric tons in the year 2022-23 for which 9,329 export health certificates were issued and Rs. 31.140 million export certification fees was collected.

(ii)-Volume of beef meat export was 101,098 metric tons in the year 2022-23 for which 30,218 export health certificates were issued and Rs. 174.553 million

export certification fees was collected.

(iii)-Export of camel meat was marginal in comparison to mutton and beef having total volume of 564 metric tons in the year 2022-23 for which 1608 export health certificates were issued and Rs. 1.271 million export certification fees was collected.

**(D) Stomach, Guts and animal casing related exports**

A total of 15,029 metric ton of beef stomach, casings, omasum and tripe were subjected to veterinary regulatory requirement and issued 1,197 export certificates and Rs. 0.889 million were collected as non-tax revenue receipt in FY 2022-23, as detailed in the table No.04.

**(E) Hides and skins related items exports**

A total of 10,922.548 Metric Tons bovine hides, sheep/goats-skins, wool and leather grists subjected to export health certifications and 2,311 certificates were issued with revenue collection of Rs. 1.1182 million, reflected in table No.05.

**(F) Bones and Bone-Products related items export**

A total of 40,358 Metric Tons of various types of bones and bone-products were subjected to sanitary health inspection, certified for export by issuing 617 health certificates while collecting a fee of Rs. 0.579 million in the reported year 2022-23, respectively. The details are available in table No.06.

**(G) Dairy products and related items export**

A total of 21,605.35 Metric Tons of dairy items /dairy products were subjected to export regulation, by Animal Quarantine Department, issued 712 veterinary health certificates and non-tax receipt collection was Rs. 1.173 million during the year 2022-23 (table No.07).

**(H) Miscellaneous items exported in 2022-23**

A variety of miscellaneous items exported including honey, Ready to eat chicken products, Chicken feet, food items fish maws and fish oil were subjected to export regulatory control and 1,593 certificates were issued along with collection of Rs. 0.5796 million as non-tax revenue receipt for national exchequer (table No.08) .

Table No.01 Live animals subjected to AQD export certification during the year (2022-23)

Year	Items exported	Units	Certificates Issued	Revenue Receipt
2022-23	Domestic animals including cattle camel ,sheep ,goat)	1,310	11	0.440
	Pets	739	722	0.129
<b>Total</b>		<b>2049</b>	<b>733</b>	<b>0.569</b>

Table No.02 Poultry items subjected to AQD export certification during the year (2022-23)

Year	Items exported	Units in Nos	Certificates Issued	Revenue Receipt
2022-23	Poultry birds including culled breeders birds	5,184,250	3,252	7.258
	Fancy birds	261,432	175	0.410
	Day Old Chicks	10,110,800	590	1.76
	Hatching eggs	38,878,445	273	0.1
	Table eggs	605,278,012	1,744	1.247
<b>Total</b>		<b>659,712,939</b>	<b>6,034</b>	<b>10.775</b>

Table No.03 Meat items subjected to AQD export certification during the year (2022-23)

Year	Items exported	Units in MT	Certificates Issued	Revenue Receipt
2022-23	Mutton Meat	7,070	9,329	31.140
	Beef Meat	101,098	30,218	174.553
	Camel Meat	564	1,608	1.271
<b>Total</b>		<b>108,732 MT</b>	<b>41,155</b>	<b>206.964</b>

Table No.04 – Offal items (organs, stomach and intestines) subjected to AQD export certification during the year (2022-23)

Year	Items exported	Unit in MT	Export Certificates	Revenue Receipt in
2022-23	Chilled Beef liver, Heart, Kidney, Tripe	22.7 MT	79	0.095
	Beef intestines			
	Frozen Beef Offals (Tripes, Trachea, Omasum)	6,766 MT	298	0.425
	Salted Sheep Casing	7,779 MT	737	0.340
	Salted Beef Casing	28.385 MT	28	0.004
	Dried Beef Casing	10.93 MT	14	0.002
	Salted Beef Tripe	422.78 MT	41	0.023
<b>Total</b>		<b>15029.795 MT</b>	<b>1,197</b>	<b>0.889</b>

Table No-05 Hides, Skins, Wool, Feather and Hair items subjected to AQD export certification during the year (2022-23)

Year	Item exported	Unit	Export Certificates	Revenue In millions
2022-23	Finished leather	5641.178 MT	1857	0.707
	Sheep skins	295.562 MT	112	0.086
	Sheep wool	2,000 MT	88	0.041
	Collagen	50 MT	05	0.003
	Washed duck down feather	2713.462 MT	195	0.213
	Cow tail hair	162.455 MT	9	0.042
	Leather grist	2.625 MT	15	0.019
	Catgut Strings (Surgical threads)	17.064 MT	03	0.001
	Dried pizzle	34.402 MT	22	0.0052
	Dried raw hides	5.8 MT	05	0.001
<b>Total</b>		<b>10,922.548 MT</b>	<b>2,311</b>	<b>1.1182</b>

Table No.06 Bones and bones products subjected to AQD export certification during the year (2022-23)

Year	Items exported	Unit	Export Certificates	Revenue Receipt in Rs. Million
2022-23	Gelatin	4,119 MT	238	0.164
	Crushed bones	31,878 MT	247	0.339
	Ossein	2,163 MT	94	0.005
	Bone grist	277 MT	5	0.05
	Horns and hooves	1,325 MT	28	0.013
	Meat and Bone Meal	596 MT	5	0.008
<b>Total</b>		<b>40,358 MT</b>	<b>617</b>	<b>0.579</b>

Table No.07 Dairy products subjected to the AQD export Certification during the year 2022-2023

Year	Items exported	Unit	Export Certificates	Revenue Receipt in Rs. Million
2022-23	Frozen butter	243 MT	15	0.011
	Powdered milk	116 MT	14	0.007
	Powdered tea milk	524 MT	55	0.025
	Malted dry milk	70 MT	04	0.001
	Mixed sweets	974	159	0.80
	Chocolates	14,353 MT	19	0.011
	Desi ghee	63 MT	27	0.012
	UHT milk	1.35 MT	03	0.001
	Anhydrous milk fat (AMF)	50 MT	03	0.001

Instant fat filled milk power	25 MT	01	0.001
Flavored milk	581 MT	17	0.020
Skimmed milk powder	25 MT	01	0.001
Biscuits	1842 MT	272	0.155
Dairy cream	2322 MT	83	0.107
Baby infant formula milk	416 MT	39	0.020
<b>Total</b>	<b>21,605.35 MT</b>	<b>712</b>	<b>1.173</b>

Table No.08 Miscellaneous items subjected to AQD export certification during the year (2022-23)

Year	Items	Unit	Export Certificates	Revenue Receipt in Rs. Million
2022-23	Honey bees	20,706 Nos	276	0.089
	Honey	171,029	495	0.108
	Pasteurized egg liquid	608,298 MT	32	0.020
	Poultry feed	381.56 MT	15	0.0013
	Frozen chicken RTE products	881.161 MT	113	0.051
	Frozen chicken feet	2,605 MT	95	0.081
	Honey	4,352 MT	385	0.214
	Ox Bile	16 MT	4	0.001
	Dried fish maws	10 MT	01	0.001
	Fish oil	226.619 MT	05	0.002
	Hunting trophies	181 Nos	126	0.0023
	Miscellaneous product	1.632 MT	46	0.009
	<b>Total</b>	<b>808,687.972</b>	<b>1,593</b>	<b>0.5796</b>

## CONCLUSIONS

The above data indicates a positive trend of livestock based exports that have diversified in a very short span of time over the years, reflecting a significant potential of this sector that is complemented by agriculture based economy. The major exports from Pakistan are meat comprising of mutton, beef and camel meat indicating the potential business opportunities in livestock based fattening farms. The value added sector of leather, dairy and poultry also reflect a promising trend, indicating the self-sufficiency of the country and production of export surplus. The export certification fee of the Animal Quarantine Department is very marginal in comparison to the volume of the exports that needs to be rationalized as per the latest market trends.

## **RECOMMENDATIONS**

Based on export data of 2022-23 of trade volume of various livestock origin commodities, export veterinary health certificates and non-tax revenue generated by provision of state sponsored services indicates a great potential in export of livestock and by-products from Pakistan that have also been credited by the gained confidence of importing countries. The following recommendations are made for all stake holders to reap the potential benefits and to further enhance the export volumes:-

- i. Animal Quarantine Department needs to be further strengthened by capacity building of human resource by trainings, establishment of new facilities at point of customs frontiers and strengthening of existing facilities to meet the WTO/ SPS standards.
- ii. Coordination between provincial and federal components needs to be further enhanced.
- iii. Introduction of new livestock breeds will promote the development of fattening farms, resultantly increasing meat export volume with consumer selection options
- iv. Revision of existing legislation by notifying the revised Animal Quarantine Rules to make it compliant with WTO and WOAHA requirements
- v. Development and implementation of WOAHA endorsed disease control and eradication programs at National level.
- vi. Strengthening of human resource as well as physical and technical infrastructure of AQD (both at HQs and various AQD stations)
- vii. Conduction of food safety awareness activities/workshop for producers/processors by Food Safety authorities and livestock departments
- viii. The existing rates of collection of non-tax revenue receipts were notified in 1999 (except meat that were notified in 2008). Revision of rates as per the govt expenditure incurred on provision of quarantine and certification services is proposed .
- ix. Development and implementation of National Drug Residues and Chemical Residue Monitoring Program through coordination and cooperation of relevant stakeholders.
- x. Legislative measures to adopt and universal implementation of Official Livestock

Identification and Traceability System.

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During the compilation of this article , the Ex-Director AQ Deptt: Karachi was  
expired .As we acknowledge his expertise and services , and a long-diseased  
person , will be remembered ,Allah (SWT) bless him rest in peace .

## CONFORMANCE SANITARY INSPECTIONS OF IMPORTED ANIMALS & ANIMAL ORIGIN COMMODITIES BY ANIMAL QUARANTINE DEPARTMENT IN PAST 03 YEARS

Zargham Nawaz Butt <sup>1</sup>, Zain ul Abideen <sup>2</sup> and . Maqbool Ahmad <sup>3</sup>

### ABSTRACT

Trade and commerce play an important role in a country's economy based on cumulative volume of import and export. These activities are regulated by country's import and export policies formulated based upon localization of goods services, protection of local industry, import / export led industrial growth, food security and bi-lateral trade protocols based upon free trade agreements, economic partnerships and incentivized tariff. Import of food and animal origin commodities regulated various regulatory principles including Sanitary and Phyto-sanitary (SPS) measures formulated by each nation/ state under SPS agreement of World Trade Organization (WTO). Animal Quarantine Department (AQD), an attached department of Ministry of National Food Security and Research regulates import and exports of animal origin commodities. The volume of imports varies based upon the industry requirement, consumer preferences and government policies. This data centric research article provides the volume of import regulated during last 03 years 2021-24 the animal origin commodities being imported and provides the evidence based potential for localization of industry for production of goods and material for import substitution. The data also reflects collection of non-tax revenue receipt on behalf of Government of Pakistan. The article ends with the summarized conclusions and critical recommendations for the concerned stakeholders.

Keywords: Livestock imports, AQD inspections, revenue generation, Pakistan

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### INTRODUCTION

General Agreement of Tariff and Trade (GATT) was agreed upon by 23 nation states in 1947 to ease up trade restriction and end practices of the pre-world war-II period. This agreement was a success in post war period and resulted in trade without discrimination and arbitration of commercial disputes. World Trade Organization (WTO - established in 1995 as a successor of GATT through Marrakesh Agreement by multilateral negotiations that were lasted from 1986 to 1994 in Uruguay Round. The WTO system covers trade in goods, services, intellectual property and it also created new procedures for settling trade disputes. Sanitary and Phyto-Sanitary (SPS) agreement of WTO encourages member states to establish their SPS measures based upon international standards, recommendations or guidelines by Codex Alimentarius Commission (CAC) The Codex, World Organization for Animal Health (WOAH) and International

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Plant Protection Convention (IPPC).

Animal Quarantine Department (AQD) the attached department of Ministry of National Food Security and Research , was established under the Pakistan Animal Quarantine (Import and Export of Animals and Animal Products) Act, 1979. The department performs its regulatory functions for the implementation of “ Pakistan Animal Quarantine (Import and Export of Animals and Animal Products) Rules, 1980.”

Animal Quarantine Department serves as an executive veterinary authority of the Federal Government and has the prime responsibility to regulate import and export as well as quarantine of animals and animal products by observing Codex standards for food safety & WOAHS standards for animal health and zoonosis. The main objectives to prevent the introduction and spread of transboundary diseases.

AQD also declared as the National Sanitary and Phyto-sanitary (SPS) Enquiry point for animals and animal products, under World Trade Organization’s SPS agreement to address the queries of member states.

The department has its headquarters at Karachi and has operational presence all across the country at point of entry/ exits, of international trade, at Lahore, Islamabad, Peshawar, Quetta, Multan, Sialkot, Gilgit, Kharlachi and Ghulam Khan.

The core functions of the department are :

- i. To regulate import and export of animals and animal products under Pakistan Animal Quarantine Act, 1979 and Rules, 1980, by providing certification services of uniform standard to meet the international trade requirements.
- ii. Inspection of the consignments at the points of entry/exit to prevent the introduction and spread of diseases .
- iii. Serves as National SPS enquiry point by observing WTO, European Union and other trading-partners requirements during import/export of animals and products of animal origin
- iv. To conducts regular inspection of processing units to check chances of hazardous contaminations and to ensure food safety of export and import consignments.
- v. Registration and follow up inspections of different processing units (e.g.

slaughterhouses, animal casing units, poultry units, dairy processing units, bone processing & gelatin producing units) by observing international requirements and trade standards to ensure food safety

This research and progress oriented article is prepared to the format of Pakistan Journal of Livestock Sciences (pakjlsc), an international journal, Regd (CE-PJLSc2009) both online and Prints by ISSN, duly encoded , provides an updated picture of AQD import regulation activities for the year 2021-24, respectively, supported with the fresh data on import only (of livestock and by-products to our research students academia and planners along with progressive farmers, industrialists and traders in this sector of Pakistan) to have an overview of animal origin import activity of our country, for the years 2021-24, to identify potential areas of industrialization and to further explore business potential.

Animal Quarantine Stations (AQS) are the field operational entities that provide trade statistics of animals/ animal origin commodities to AQD headquarters (HQ) at Karachi, compiled and reported to Livestock Wing of M/o. National Food Security and Research, for strategic policy formulation. This report is limited to the FY 2021-24, however effort has been made to summarize the information under various sub-headings for the convenience of all concerned, as detailed below:-

#### **(A) Import of Live Animals**

Pakistan is an agro-livestock country where income generation activities are linked with agriculture crop production and livestock raising to complement income. Livestock raising for commercial scale dairy farming has gained momentum in last two decades and various medium to large scale dairy farms have been developed especially in Punjab region for milk production for further value addition through packaging and processing. Pakistan is importing dairy animals from Netherlands, USA, Australia and recently from Brazil having sanitary status higher than Pakistan.

In FY 2021-22, live animals imported into the country regulated by Animal Quarantine Department were; dairy heifers and bulls (6,091 Nos) through 09 release orders, Goats (100 Nos) through 01 release order, Horses (159 Nos) through 30 release orders, Pet animals (420 Nos) through 215 release orders, Rabbits (845 Nos) through 12 release orders and Zoo Animals (195 Nos) through 19 release orders.

In FY 2022-23, live animals imported into the country regulated by Animal Quarantine Department were; dairy heifers and bulls (1,589) through 06 release orders, Horses (88 Nos) through 17 release orders and Pet animals (127 Nos) through 100 release orders.

In FY 2022-23, live animals imported into the country regulated by Animal Quarantine Department were; dairy heifers and bulls (1,396) through 03 release orders, Horses (64 Nos) through 12 release orders, Pet animals (132 Nos) through 93 release orders and reptiles (50 Nos) through 01 release order, respectively. (table No.01)

Table No-01 Import regulation by issuance of release order for live animals and NTRs

Sr. No.	Items imported	2021-22			2022-23			2023-24		
		Qty	RO	NTR	Qty	RO	NTR	Qty	RO	NTR
1.	Dairy heifers & bulls	6,091	09	0.622	1,589	06	0.242	1,396	03	0.1396
2.	Goats	100	01	0.025	-	-	-	-	-	-
3.	Horses	159	30	0.090	88	17	0.032	64	12	0.0135
4.	Pet (Dogs & Cats)	420	215	0.066	127	100	0.021	132	93	0.0212
5.	Rabbits	845	12	0.003	-	-	-	-	-	-
6.	Zoo animals including reptiles	195	19	0.020	-	-	-	50	01	0.0001

\*Qty = Metric Tons (MT) \*RO= Release Order NTR=Non-Tax Revenue Receipt

### (B) Import of Live Poultry, Birds, Eggs and Products

Live poultry including day old chicks and hatching eggs of the grandparent and breeder stock were imported for poultry production and farming activities. As broiler is an important source of animal protein for national population and layer birds are used for egg production activities that are used in household and various industries.

In FY 2021-22, AQD regulated commodities; Day Old Chicks (643,873 Nos) through 37 release orders and collected an amount of Rs. 0.965 million as revenue, Fancy Chickens (3,352 Nos) through 14 release order and collected an amount of Rs. 0.0078 million as revenue, Fancy Birds (31,641 Nos) through 149 release order and collected an amount of Rs. 0.164 million revenue, Houbara Bustard (3,554 Nos) through 04 release order and collected an amount of Rs. 0.021 million revenue, Hatching Eggs (1,175,760 Nos) through 26 release order and collected an amount of Rs. 0.0063 million revenue, Table Eggs (524,760 Nos) through 26 release order and collected an amount of Rs. 0.001 million as revenue, Egg albumen (5.5 M. Tons) through 04 release order and collected an amount of Rs. 0.0008 million, Poultry Fat Oil (31 M. Tons) through 01 release order and collected an amount of Rs. 0.0003 million, Egg powder (232.450 M. Tons) through 18 release order and collected an amount of Rs. 0.902 million as revenue, Chicken feet (23.881 M. Tons) through 01 release order and collected an amount of Rs. 0.0249 million as revenue, Chicken meat (26.175 M. Tons) through 04 release order and collected an

amount of Rs. 0.0016 million, Chicken tail (184 M. Tons) through 07 release order and collected an amount of Rs. 0.005 million as revenue respectively, table No-02.

In FY 2022-23, AQD regulated commodities namely Day Old Chicks (323,366 Nos) through 18 release orders and collected an amount of Rs. 0.337 million as revenue, Fancy chicken (1,894 Nos) through 46 release order and collected an amount of Rs. 0.025 million, Fancy Birds (112 Nos) through 04 release orders and collected an amount of Rs. 0.0006 million, Houbara Bustard (5,804 Nos) through 06 release order and collected an amount of Rs. 0.032 million, Hatching Eggs (357,480 Nos) through 04 release order and collected an amount of Rs. 0.0007 million, Chicken Tails (39.58 M. Tons) through 02 release order and collected an amount of Rs. 0.0009 million as revenue;, Poultry Fat Oil (232.270 M. Tons) through 05 release order and collected an amount of Rs. 0.0034 million revenue, Poultry Fat (469.600 M. Tons) through 14 release order and collected an amount of Rs. 0.0184 million, Egg Powder (70 M.Tons) through 11 release order and collected an amount of Rs. 0.00525 million as revenue, respectively.

In FY 2023-24, Animal Quarantine Department regulated following commodities; Day Old Chicks (305,818 Nos) through 18 release orders and collected an amount of Rs. 0.044 million, Fancy birds (6,737 Nos) through 62 release order and collected an amount of Rs. 0.087 million, Chicken Tails (68.56 M. Tons) through 03 release order and collected an amount of Rs. 0.008 million, Poultry fat (368.100 M. Tons) through 05 release order and collected an amount of Rs. 0.0023 million as revenue. Chicken flavored cubes (87.552 M. Tons) through 05 release order and collected an amount of Rs. 0.010 million, Egg Powder (56.500 M. Tons) through 11 release order and collected an amount of Rs. 0.0034 million, Poultry Fat Oil (27.340 M. Tons) through 01 release order and collected an amount of Rs. 0.00028 millionas revenue and Hatching Eggs (691,560 Nos) through 20 release order and collected an amount of Rs. 0.041 million, as revenue ,respectively (table No.01).

Table No-02. Import regulation by issuance of release order for live poultry, birds, eggs and products

Sr. No.	Items imported	2021-22			2022-23			2023-24		
		Qty	RO	NTR	Qty	RO	NTR	Qty	RO	NTR
1.	Day old chicks	643,873 Nos	37	0.965	323,366 Nos	18	0.337	305,818 Nos	18	0.044
2.	Fancy chicken	3,352 Nos	14	0.0078	1,894 Nos	46	0.025	-	-	-
3.	Fancy birds	31,641 Nos	149	0.164	112 Nos	04	0.0006	6,737 Nos	62	0.087
4.	Houbara bustard	3,554 Nos	04	0.021	5,804 Nos	06	0.032	-	-	-
5.	Hatching eggs	1,175,760 Nos	26	0.0063	357,480 Nos	04	0.0007	691,560 Nos	-	-

6.	Table eggs	524,760 Nos	26	0.001	-	-	-	-	-	-
7.	Egg albumen	5.5 MT	04	0.0008	-	-	-	-	-	-
8.	Poultry fat oil	31 MT	01	0.003	232.270 MT	05	0.0034	27.340 MT	01	0.00028
9.	Poultry fat	-	-	-	469.600 MT	14	0.0184	368.100 MT	05	0.0023
10.	Egg powder	232.450 MT	18	0.902	70 MT	11	0.00525	56.5 MT	11	0.0034
11.	Chicken feet	23.881 MT	01	0.0249	-	-	-	-	-	-
12.	Chicken meat	26.175 MT	04	0.0016	-	-	-	-	-	-
13.	Chicken tail	184 MT	07	0.005	39.58 MT	02	0.0009	68.56 MT	03	0.008
14.	Chicken flavored cubes	-	-	-	-	-	-	87.552 MT	05	0.010

\*Qty = Metric Tons (MT) \*RO= Release Order NTR=Non-Tax Revenue Receipt

### (C) Meat products and Offals

Meat preparations were imported by fast food chains and animals offal are imported for human consumption as well as value added process processing for further export.

In FY 2021-22, AQD regulated commodities namely; Beef Pepperoni (66.90 M. Tons) through 08 release orders and collected an amount of Rs. 0.0021 million as NTR , Bovine liver (566 M. Tons) through 24 release orders and collected an amount of Rs. 0.014 million as NTR, Bovine trotters (43.90 M. Tons) through 02 release orders and collected an amount of Rs. 0.011 million, Bovine stomach (832 M. Tons) through 41 release orders and collected an amount of Rs. 0.014 million, Beef burger patties (494 M. Tons) through 179 release orders and collected an amount of Rs. 0.06 million as NTR, Bovine Offals including Omasum & Tripe (620.76 M. Tons) through 16 release orders and collected an amount of Rs. 0.010 million as NTR respectively (table No.03).

In FY 2022-23, AQD regulated commodities: namely; Beef Pepperoni (96.208 M. Tons) through 12 release orders and collected an amount of Rs. 0.015 million as NTR, Bovine Offal including Omasum & Tripe (129.050 M. Tons) through 54 release orders and collected an amount of Rs. 0.010 million, Bovine trotters (255.944 M. Tons) through 13 release orders and collected an amount of Rs. 0.007 million NTR, Bovine stomach (885.610 M. Tons) through 62 release orders and collected an amount of Rs. 0.019 million as NTR and sacrificed sheep meat (140 M. Tons) through 02 release orders and collected an amount of Rs. 0.002 million NTR , respectively (table No.03).

In FY 2023-24, Animal Quarantine Department regulated following commodities; Beef Pepperoni/ Beef Patties (229.072 M. Tons) through 21 release orders and collected an amount of Rs. 0.020 million as NTR , Salted bovine offal including Omasum & Tripe (4097.899 M. Tons) through 163 release orders and collected an amount of Rs. 0.0765 million as NTR , Sheep tail fat (21 M. Tons) through 01 release order and collected an

amount of Rs. 0.0005 million as NTR and sacrificed sheep meat (270 M. Tons) through 02 release orders and collected an amount of Rs. 0.0034 million, as NTR, respectively..

Table No-03 Import regulation by issuance of release order for Meat products and Offals

Sr. No.	Items imported	2021-22			2022-23			2023-24		
		Qty	RO	NTR	Qty	RO	NTR	Qty	RO	NTR
1.	Beef pepperoni	66.90	08	0.0021	96.208	12	0.015	229.072	21	0.020
2.	Bovine liver	566	24	0.014	-	-	-	-	-	-
3.	Bovine trotters	43.90	02	0.011	255.944	13	0.007	-	-	-
4.	Bovine stomach	832	41	0.014	885.610	62	0.619	-	-	-
5.	Burger patties	494	179	0.06	-	-	-	-	-	-
6.	Tripe & Omasum	620.76	16	0.010	129.050	54	0.010	4,097.899	163	0.0765
7.	Sacrificed meat	-	-	-	140	2	0.002	270	02	0.0034
8.	Sheep tail fat	-	-	-	-	-	-	21	01	0.0005

\*Qty = Metric Tons (MT) \*RO= Release Order NTR=Non-Tax Revenue Receipt

#### (D) Animal Feed Material

Animal feed ingredients are imported in the form of ready to use products in terms of dog and cat feed. Moreover, various raw material of animal feed are also imported used to make processed animal feed.

In FY 2021-22, AQD regulated commodities namely ; Dog and Cat feed (4,236.456 M. Tons) through 207 release orders and collected an amount of Rs. 0.226 million as NTR, Processed animal feed (1.404 M. Tons) through 01 release order and collected an amount of Rs. 0.0005 million as NTR,, Meat and Bone Meal (2,692 M. Tons) through 11 release order and collected an amount of Rs. 0.029 million NTR., Poultry by-product meal (741.59 M. Tons) through 10 release order and collected an amount of Rs. 0.009 million, Bird and fish feed (158.70 M. Tons) through 53 release order and collected an amount of Rs. 0.010 million, Calf Milk Replacer and Cattle Feed Premix (592.926 M. Tons) through 26 release order and collected an amount of Rs. 0.0115 million , as NTR (table No -04)

In FY 2022-23, AQD regulated commodities namely ; Dog and Cat feed (1761.031 M. Tons) through 90 release orders and collected an amount of Rs. 0.142 million as NTR, Bird feed (12.27 M. Tons) through 07 release orders and collected an amount of Rs. 0.001 million as NTR, Processed Animal Feed (359.690 M. Tons) through 05 release orders and collected an amount of Rs. 0.004 million, Meat and Bone Meal (331.390 M. Tons) through 03 release orders and collected an amount of Rs. 0.003 million as NTR, Animal Fat (47.53 M. Tons) through 01 release order and collected an amount of Rs. 0.0003 million as NTR, Poultry meat meal (46 M. Tons) through 02 release order and collected an amount of Rs. 0.00095 million as NTR, Rumen by-pass fat (112.5 M. Tons) through 06 release order and collected an amount of Rs. 0.0013 million as NTR and Fish feed (2.870

M. Tons) through 02 release order and collected an amount of Rs.0.00045 million as NTR respectively .

In FY 2023-24, AQD regulated commodities namely ; Dog and Cat feed (1539.630 M. Tons) through 103 release orders and collected an amount of Rs. 0.178 million as NTR, Bovine Meat and Bone Meal (7,612 M. Tons) through 45 release orders and collected an amount of Rs. 0.094 million, Calf Milk Replacer (132 M. Tons) through 06 release orders and collected an amount of Rs. 0.0151 million as NTR, Cattle Feed Premix (198 M. Tons) through 07 release order and collected an amount of Rs. 0.095 million as NTR, Poultry feed additives and promoters (4,909 M. Tons) through 191 release order and collected an amount of Rs. 0.3573 million as NTR, Bird feed (21.54 M. Tons) through 02 release orders and collected an amount of Rs. 0.00375 million as NTR, Fish feed (51.13 M. Tons) through 04 release orders and collected an amount of Rs. 0.0077 million as NTR respectively (table No-04)

Table No-04 Import regulation by issuance of release order for animal feed material

Sr. No.	Items imported	2021-22			2022-23			2023-24		
		Qty	RO	NTR	Qty	RO	NTR	Qty	RO	NTR
1.	Dog and cat feed	4,236.456	207	0.226	1761.031	90	0.142	1539.630	103	0.178
2.	Processed animal feed	1.404	01	0.0005	359.690	05	0.004	-	-	-
3.	Meat and bone meal	2692	11	0.029	331.390	03	0.003	7,612	45	0.094
4.	Poultry by-product meal	741.59	10	0.009	46	02	0.00095	-	-	-
5.	Bird and fish feed	158.70	53	0.010	15.14	09	0.005	72.67	06	0.01
6.	CMR/ CFP	592.926	26	0.0115	-	-	-	330	13	0.110
7.	Animal fat	-	-	-	47.53	01	0.0003	-	-	-
8.	Rumen by-pass fat	-	-	-	112.5	06	0.0013	-	-	-
9.	Poultry feed additives and promoters	-	-	-	-	-	-	4,909	191	0.357

\*Qty = Metric Tons (MT) \*RO= Release Order NTR=Non-Tax Revenue Receipt

### (E) Skins, Hides and Finished leather

Skins, hides and leather (semi-finished or finished form) are used for making gloves, jackets, bags, belts and other value added textile goods.

In FY 2021-22, Animal Quarantine Department regulated following commodities; Leather, wet blue/ salted hides and skins (35,895.567 M. Tons) through 1,013 release order and collected an amount of Rs. 0.39 million ,as NTR.

In FY 2022-23, Animal Quarantine Department regulated following commodities; Deer skins/ wet blue lamb pelt/ Salted deer hides/ Pickled Kangaroo skins/ Pickled Goat Skin Pelts/ Wet blue sheep and goat skins/ Finished sheep and lamb skins / Sheep fur skins/ Cow hides (30,679.90 M. Tons) through 1,053 release orders and collected an amount of

Rs. 0.622 million. Donkey skins (427.257 M. Tons) through 20 release orders and collected an amount of Rs. 0.0060 million as NTR. Tanned/ crusted leather (3029.977 M. Tons) through 160 release orders and collected an amount of Rs. 0.087 million as NTR ,as respectively detailed in table no.05..

In FY 2023-24, Animal Quarantine Department regulated following commodities; Raw Dry/ Drum Salted Cow/ Goat/ Sheep & Deer Skin (21,547.571 M. Tons) through 753 release order and collected an amount of Rs. 0.403 million as NTR, Wet blue sheep / Goat / Cow & Lamb Skin (10,458.808 M. Tons) through 354 release orders and collected an amount of Rs. 0.395 million, Finished cow/ Sheep/ Goat & lamb leather (62,244.237 M. Tons) through 412 release orders and collected an amount of Rs. 0.0912 million as NTR, Pickled Sheep/ Goat/ Lamb & Kangaroo Skin (13,884.849 M. Tons) through 539 release orders and collected an amount of Rs. 0.254 million as NTR, Donkey skins (972.550 M. Tons) through 50 release orders and collected an amount of Rs. 0.014 million as NTR.

Table No-05 Import regulation by issuance of release order for skins, hides and finished leather

Sr. No.	Items imported	2021-22			2022-23			2023-24		
		Qty	RO	NTR	Qty	RO	NTR	Qty	RO	NTR
1.	Leather, wet blue/ salted hides and skins	35,895.567	1,013	0.39	30,679.90	1,053	0.62	21,547.571	753	0.403
2.	Donkey skins	-	-	-	427.257	20	0.00	972.550	50	0.014
3.	Tanned/ crusted leather	-	-	-	3029.97	160	0.08	62,244.237	412	0.0912
4.	Pickled Sheep/ Goat/ Lamb & Kangaroo Skin	-	-	-	-	-	-	13,884.849	539	0.254

\*Qty = Metric Tons (MT) \*RO= Release Order NTR=Non-Tax Revenue Receipt

## (F) Bovine Semen

Bovine semen of Holstein Friesian, Jersey and Brahman breed was imported by the commercial farming sector , for breeding purpose, as well as for genetic impoverment of local strains of various breeds.

In FY 2021-22, AQD regulated commodities namely ; Bovine semen (332,230 Doses) through 79 release orders and collected an amount of Rs. 0.0183 million as NRT. While in FY 2022-23, Bovine semen regulated (374,169 Doses) through 23 release orders and collected an amount of Rs. 0.0066 million as NRT. In FY 2023-24, Bovine semen regulated (277,954 Doses) through 19 release orders and collected an amount of Rs. 0.0184 million as NRT, as given in table no-06.

Table No-06 Import regulation by issuance of release order for bovine semen

Sr. No.	Items imported	2021-22			2022-23			2023-24		
		Qty	RO	NTR	Qty	RO	NTR	Qty	RO	NTR
1.	Bovine semen	332,230	79	0.0183	374,169	23	0.0066	277,954	19	0.0184

\*Qty = Metric Tons (MT) \*RO= Release Order NTR=Non-Tax Revenue Receipt

### (G) Wool, Hair and associated products

Wool, hair and lanolin are used in various industries i.e. carpet, soap and polish. In FY 2021-22, Animal Quarantine Department regulated following commodities; wool (2,172 M. Tons) through 55 release orders and collected an amount of Rs. 0.022 million NTR, Lanolin (35.640 M. Tons) through 07 release orders and collected an amount of Rs. 0.00172 million, Goat hairs (84 M. Tons) through 06 release orders and collected an amount of Rs. 0.00172 million as NTR, as given in the table No.07.

In FY 2022-23, AQD regulated commodities namely; wool (13,895.56 M. Tons) through 125 release orders and collected an amount of Rs. 0.096 million and Lanolin (92.250 M. Tons) through 24 release orders and collected an amount of Rs. 0.0154 million, as respectively, (table-No.07)

In FY 2023-24, AQD regulated following commodities; goat hair (45.133 M. Tons) through 03 release orders and collected an amount of Rs. 0.00075 million, Lanolin (43.195 M. Tons) through 15 release orders and collected an amount of Rs. 0.00523 million and wool (3701.80 M. Tons) through 113 release orders and collected an amount of Rs. 0.088 million (table No.07).

Table No-07 Import regulation by issuance of release order for Wool, Hair and associated products

Sr. No.	Items imported	2021-22			2022-23			2023-24		
		Qty	RO	NTR	Qty	RO	NTR	Qty	RO	NTR
1.	Wool	2,172	55	0.022	13,895.56	125	0.096	3701.80	113	0.088
2.	Lanolin	35.640	07	0.00172	92.250	24	0.0154	43.195	15	0.00523
3.	Goat hair	84	06	0.00172	-	-	-	45.133	03	0.00075

\*Qty = Metric Tons (MT) \*RO= Release Order NTR=Non-Tax Revenue Receipt

### (H) Horns, Bones and their products

Bones are used for gelatin making as well as making of Di-calcium phosphate to be used as animal feed ingredient, for the last many years, at home and abroad.

In FY 2021-22, AQD regulated commodities namely; bovine bones (1649.636 M. Tons) through 04 release orders and collected an amount of Rs. 0.0018 million as NTR, Gelatin (13.57 M. Tons) through 07 release orders and collected an amount of Rs. 0.00315 million as NTR, Ossein Mineral Complex (7.5 M. Tons) through 05 release orders and collected an amount of Rs. 0.0009 million as NTR, and Animal horns & trophies (8.572 M. Tons)

through 04 release orders thus collected an amount of Rs. 0.0018 million as NTR ,respectively detailed in the table no.08..

In FY 2022-23, AQD regulated following commodities namely; animal bones (5060.71 M. Tons) through 157 release orders and collected an amount of Rs. 0.0651 million NTR,, Gelatin (48.605 M. Tons) through 13 release orders and collected an amount of Rs. 0.0118 million as NTR, Bovine horns and hooves (38.220 M. Tons) through 02 release orders and collected an amount of Rs. 0.000825 million as NTR and Hunting trophies (14 pieces) through 01 release order and collected an amount of Rs. 0.0002 million as NTR.

In FY 2023-24, AQD regulated commodities namely ; bovine bones (2250.286 M. Tons) through 86 release orders and collected an amount of Rs. 0.034 million as NTR, Donkey bones (145.547 M.Tons) through 06 release orders and collected an amount of Rs. 0.0025 million, Gelatin (42.30 M. Tons) through 09 release orders and collected an amount of Rs. 0.00215 million as NTR, Animal horns (11.044 M. Tons) through 06 release orders thus collected an amount of Rs. 0.00408 million as NTR, as detailed in the table no.08.

Table No-08 Import regulation by issuance of release order for horns, bones and their products

Sr. No.	Items imported	2021-22			2022-23			2023-24		
		Qty	RO	NTR	Qty	RO	NTR	Qty	RO	NTR
1.	Bovine bones	1649.636	04	0.0018	5060.71	157	0.0651	2250.286	86	0.034
2.	Gelatin	13.57	07	0.00315	48.605	13	0.0118	42.30	09	0.00215
3.	Ossein Mineral Complex	7.5	05	0.0009	-	-	-	-	-	-
4.	Animal horns & trophies	8.572	04	0.0018	38.220	03	0.0001	11.044	06	0.00408
5.	Donkey bones	-	-	-	-	-	-	145.547	06	0.0025

\*Qty = Metric Tons (MT) \*RO= Release Order NTR=Non-Tax Revenue Receipt

### (I) Dairy Products and derivatives

Dairy products are imported either for direct consumption and for use in dairy processing industry in the country.

In FY 2021-22, AQD regulated commodities namely; Butter (99.234 M. Tons) through 05 release orders and collected an amount of Rs. 0.0050 million AQD, Cheese (2789.98 M. Tons) through 68 release orders and collected an amount of Rs. 0.056 million as NTR, Desi ghee (25.50 M. Tons) through 03 release orders and collected an amount of Rs. 0.001 million as NTR, Rennet casein (522.025 M. Tons) through 29 release orders and collected an amount of Rs. 0.011 million as NTR, Condensed milk (67.266 M. Tons) through 04 release orders and collected an amount of Rs. 0.002 million as NTR, Full

cream milk powder (353.754 M. Tons) through 23 release orders and collected an amount of Rs. 0.0094 million as NTR, UHT milk (22.226 M. Tons) through 01 release orders and collected an amount of Rs. 0.00065 million as NTR, Skim milk powder (14,768.844 M. Tons) through 293 release orders and collected an amount of Rs. 0.206 million as NTR, Yoghurt (19.602 M. Tons) through 03 release orders and collected an amount of Rs. 0.00225 million as NTR, Whey powder (9,984.753 M. Tons) through 244 release orders and collected an amount of Rs. 0.150 million and Sodium caseinate (7.0 M. Tons) through 02 release orders and collected an amount of Rs. 0.000475 million as NTR.

In FY 2022-23, AQD regulated commodities namely; butter (135.728 M. Tons) through 07 release orders and collected an amount of Rs. 0.0185 million as NTR, Desi ghee (0.3 M. Tons) through 02 release orders and collected an amount of Rs. 0.000425 million as NTR, Cream Cheese (12.66 M. Tons) through 02 release orders and collected an amount of Rs. 0.00358 million as NTR, Cream (604.860 M. Tons) through 35 release orders and collected an amount of Rs. 0.0583 million as NTR, Sweetened condensed milk (66.436 M. Tons) through 03 release orders and collected an amount of Rs. 0.00153 million as NTR, Rennet Casein (312.575 M. Tons) through 23 release orders and collected an amount of Rs. 0.0299 million as NTR, Acid casein (9.23 M. Tons) through 03 release orders and collected an amount of Rs. 0.001675 million as NTR, Sodium casein (6.0 M. Tons) through 02 release orders and collected an amount of Rs. 0.0012 million NTR, Non-fat dry milk powder (907.325 M. Tons) through 21 release orders and collected an amount of Rs. 0.0194 million as NTR, Evaporated full cream milk (113.592 M. Tons) through 06 release orders and collected an amount of Rs. 0.0207 million as NTR, Skimmed milk powder (16,307.78 M. Tons) through 171 release orders and collected an amount of Rs. 0.297 million as NTR, Full cream milk powder (254.200 M. Tons) through 12 release orders and collected an amount of Rs. 0.0179 million as NTR, Cheese powder (0.3 M. Tons) through 01 release orders and collected an amount of Rs. 0.000425 million as NTR, Whey powder (12,121.360 M. Tons) through 250 release orders and collected an amount of Rs. 0.265 million as NTR, Milk protein (50.6 M. Tons) through 03 release orders and collected an amount of Rs. 0.0053 million as NTR (table no-09).

In FY 2023-24, AQD regulated commodities; Butter (104.425 M. Tons) through 07 release orders and collected an amount of Rs. 0.00638 million as NTR, Cheese (656.684 M. Tons) through 37 release orders and collected an amount of Rs. 0.045 million as NTR,

Desi ghee (25.463 M. Tons) through 05 release orders and collected an amount of Rs. 0.0023 million, Milk Powder (28,082.57 M. Tons) through 372 release orders and collected an amount of Rs. 0.485 million, Condensed milk (277.708 M. Tons) through 14 release orders and collected an amount of Rs. 0.0607 million as NTR, Cheese powder (2.675 M. Tons ) through 03 release orders and collected an amount of Rs. 0.0012 million as NTR, Whey powder (6835.344 M. Tons) through 285 release orders and collected an amount of Rs. 0.146 million, Bakery enzyme (68.268 M. Tons) through 24 release orders to collected an amount of Rs.0.0256 million as NTR, Rennet Casein (700.161 M) through 49 release orders and collected an amount of Rs. 0.0322 million, as NRT (table no.09).

**Table No-09 Import regulation by issuance of release order for dairy products and derivatives**

Sr. No.	Items imported	2021-22			2022-23			2023-24		
		Qty	RO	NTR	Qty	RO	NTR	Qty	RO	NTR
1.	Butter	99.234	05	0.0050	135.728	07	0.0185	104.425	07	0.00638
2.	Cheese	656.684	37	0.045	-	-	-	656.684	37	0.045
3.	Cheese powder	0.3	01	0.000425	-	-	-	2.675	03	0.0012
4.	Cream cheese	-	-	-	12.66	-	-	-	-	-
5.	Milk cream	-	-	-	604.860	35	0.0583	-	-	-
6.	Desi ghee	25.50	03	0.001	0.3	02	0.000425	25.463	05	0.0023
7.	Rennet casein	522.025	29	0.011	312.575	23	0.0299	700.161	49	0.0322
8.	Acid casein	-	-	-	9.23	03	0.001675	-	-	-
9.	Condensed milk	67.266	04	0.002	66.436	03	0.00153	277.708	14	0.0607
10.	Full cream milk powder	353.754	23	0.0094	254.200	12	0.0179	28,082.57	372	0.485
11.	Evaporated full cream milk	-	-	-	113.592	06	0.0207	-	-	-
12.	UHT milk	22.226	01	0.00065	-	-	-	-	-	-
13.	Skim milk powder	14,768.844	293	0.206	16,307.78	171	0.297	-	-	-
14.	Non-fat dry milk powder	-	-	-	907.325	21	0.0194	-	-	-
15.	Yoghurt	19.602	03	0.00225	-	-	-	-	-	-
16.	Whey powder	9,984.753	244	0.150	12,121.360	250	0.265	6835.344	285	0.146
17.	Sodium caseinate	7.0	02	0.000475	6.0	02	0.0012	-	-	-
18.	Milk protein	-	-	-	50.6	03	0.0053	-	-	-
19.	Bakery enzyme	-	-	-	-	-	-	68.268	24	0.0256

\*Qty = Metric Tons (MT) \*RO= Release Order NTR=Non-Tax Revenue Receipt

## **(J) Fish and fish products**

Fish meat is imported for direct human consumption and fish products are imported for processing or fish farming activities.

In FY 2021-22, AQD regulated commodities namely; Pangasius fish fillet (4,364.069 M. Tons) through 184 release orders and collected an amount of Rs. 0.155 million as NTR, Edible frozen fish (9,334.219 M. Tons) through 52 release orders and collected an amount of Rs. 0.00668 million as NTR , Frozen shrimp (37.242 M. Tons) through 52 release orders and collected an amount of Rs. 0.00938 million as NTR, Processed fish chunks (13.872 M. Tons) through 01 release orders and collected an amount of Rs. 0.000625 million as NTR , Fish oil (0.760 M. Tons) through 01 release orders and collected an

amount of Rs. 0.00076 million as NTR, Sea shells (21 M. Tons) through 02 release orders and collected an amount of Rs. 0.0005 million as NTR and Trout fish eggs (200,000 Nos) through 07 release orders and collected an amount of Rs. 0.0007 million as NTR , as detailed in the table No-10..

In FY 2022-23, AQD regulated commodities namely ; Pangasius fish fillet (3461.123 M. Tons) through 152 release orders and collected an amount of Rs. 0.165 million as NTR , Frozen salmon fish (28.824 M. Tons) through 41 release orders and collected an amount of Rs. 0.0148 million as NTR , Live aquarium fish (108 boxes) through 06 release orders and collected an amount of Rs. 0.0021 million as NTR, Live tropical fish (495,994 Tails) through 56 release orders and collected an amount of Rs. 0.038 million as NTR, Dried shark fin (0.20 M. Tons) through 01 release order and collected an amount of Rs. 0.00025 million As NTR , Fish collagen (9.37 M. Tons) through 09 release order and collected an amount of Rs. 0.00498 million, Sea shells (12.097 M. Tons) through 03 release orders and collected an amount of Rs. 0.0011 million, Fish Oil (7.41 M. Tons) through 03 release order and collected an amount of Rs. 0.00138 million as NTR, Squid tubes (07 M. Tons) through 01 release order and collected an amount of Rs. 0.0007 million as NTR , Fish chunks (43.468 M. Tons) through 02 release order and collected an amount of Rs. 0.00053 million as NTR respectively detailed in table No .10.

In FY 2023-24, AQD regulated commodities namely ; Pangasius fish fillet (2,617.223 M. Tons) through 163 release orders and collected an amount of Rs. 0.127 million as NTR, Fish Oil (15.195 M. Tons) through 09 release orders and collected an amount of Rs. 0.0022 million, Squid tubes (07 M. Tons) through 01 release order and collected an amount of Rs. 0.0007 million, Fish chunks (4.968 M. Tons) through 02 release order and collected an amount of Rs.0.0012 million as NTR, Live tropical fish (409,992 Tails) through 80 release orders and collected an amount of Rs. 0.0155 million as NTR , Shrimp larvae (8,000,266 Tails) through 06 release orders and collected an amount of Rs. 0.0135 million as NTR , Trout fish eggs (250,000 Nos) through 03 release orders and collected Rs. 0.0001 million as NTR and Sea shells (30.76 M. Tons) through 04 release orders and collected an amount of Rs. 0.0018 million as NTR ,as displayed in the table No.10.

**Table No-10 Import regulation by issuance of release order for fish and fish products**

Sr. No.	Items imported	2021-22			2022-23			2023-24		
		Qty	RO	NTR	Qty	RO	NTR	Qty	RO	NTR
1.	Pangasius fish	4,364.069	184	0.155	3,461.123	152	0.165	2,617.223	163	0.127

2.	fillet									
3.	Edible frozen fish	9,334,219	52	0.00668	-	-	-	-	-	-
4.	Frozen shrimp	37.242	52	0.00938	-	-	-	-	-	-
5.	Processed fish	13.872	01	0.00063	43.468	02	0.00053	4.968	02	0.0012
6.	chunks									
7.	Fish oil	0.760	01	0.00076	7.41	03	0.00138	15.195	09	0.0022
8.	Sea shells	21	02	0.0005	12.097	03	0.0011	30.76	04	0.0018
9.	Trout fish eggs	200,000	07	0.0007	-	-	-	250,000	03	0.0001
10.	Frozen salmon	-	-	-	28.824	41	0.0148	-	-	-
11.	fish									
12.	Live aquarium fish	-	-	-	108 Boxes	06	0.0021	-	-	-
13.	Live tropical fish	-	-	-	495,994	56	0.038	409,992	80	0.0155
14.	Tails									
15.	Dried shark fin	-	-	-	0.20	01	0.00025	-	-	-
16.	Fish collagen	-	-	-	9.37	09	0.00498	-	-	-
17.	Squid tubes	-	-	-	07	01	0.0007	07	01	0.0007
18.	Shrimp larvae	-	-	-				8,000,266	06	0.0135
	Tails									

\*Qty = Metric Tons (MT) \*RO= Release Order NTR=Non-Tax Revenue Receipt

### (K) Bees, Silkworm, Earthworm and their products

Bees are used for honey production and also used as pollinator in agriculture. Moreover, silkworms are used for silk making that is processed for silk cloth making. Honey is imported for human use. Beeswax is used in cosmetics and as lubricant in polishes.

In FY 2021-22, AQD regulated following commodities; Honey (390.763 M. Tons) through 49 release orders and collected an amount of Rs. 0.0341 million as NTR, Beeswax (18.053 M. Tons) through 07 release orders and collected an amount of Rs. 0.002 million as NTR and Silkworm eggs (556 Ctns) through 01 release orders and collected an amount of Rs. 0.0005 million as NTR.

In FY 2022-23, AQD regulated following commodities; Honey (124.189 M. Tons) through 16 release orders and collected an amount of Rs. 0.0127 million as NTR , Honey bees (12,187 Boxes) through 236 release orders and collected an amount of Rs. 0.034 million as NTR, Beeswax (32.640 M. Tons) through 06 release orders and collected an amount of Rs. 0.0033 million as NTR, Bumblebee hives (09 Boxes) through 01 release order and collected an amount of Rs. 0.000075 million as NTR , Silkworms (01 Box) through 01 release order and collected an amount of Rs. 0.0001 million as NTR , Silkworm eggs (333 Boxes) through 03 release orders and collected an amount of Rs. 0.0006 million as NTR and Earthworms (180 Boxes) through 02 release order and collected an amount of Rs. 0.001375 million as NRT .

In FY 2023-24, AQD regulated commodities namely ; Honey (158.591 M. Tons)through 15 release orders and collected an amount of Rs. 0.0246 million as NTR, Honey bees (12,697 Boxes) through 138 release orders and collected an amount of Rs. 0.0241 million

as NTR, Beeswax (15.4 M. Tons) through 05 release orders and collected an amount of Rs. 0.00103 million, Bumblebee Hives (05 Boxes) through 01 release order and collected an amount of Rs. 0.00015 million as NTR, Silkworm eggs (808 Boxes) through 05 release orders and collected an amount of Rs. 0.0007 million as NTR as shown in the table no.11.

Table No-11 Import regulation by issuance of release order for Bees, Silkworm, Earthworm and their products

Sr. No.	Items imported	2021-22			2022-23			2023-24		
		Qty	RO	NTR	Qty	RO	NTR	Qty	RO	NTR
1.	Honey	390.763	49	0.0341	124.189	16	0.0127	158.591	15	0.0246
2.	Beeswax	18.053	07	0.002	-	-	-	15.4	05	0.00103
3.	Silkworms	-	-	-	01 Box	01	0.0001	-	-	-
4.	Silkworm eggs	556 Ctns	01	0.0005	-	-	-	808 Boxes	05	0.0007
5.	Honey bees	-	-	-	12,187 Boxes	236	0.034	12,697	138	0.0241
6.	Bumblebee hives	-	-	-	09 Boxes	01	0.000075	05 Boxes	01	0.00015
7.	Earthworms	-	-	-	180 Boxes	02	0.001375	-	-	-

\*Qty = Metric Tons (MT) \*RO= Release Order NTR=Non-Tax Revenue Receipt

### (L) Frozen and Ready to Eat (RTE) products

In FY 2022-23, AQD regulated commodities namely ; Chicken Sausages/ Cheese Franks (373.103 M. Tons) through 26 release orders, collected an amount of Rs. 0.0894 million as NTR, Frozen food items (68.245 M. Tons) through 63 release orders and collected an amount of Rs. 0.0505 million and Ice cream (276.738 M. Tons) through 15 release orders and collected an amount of Rs. 0.059 million, as NTR available in the table no.12 .

In FY 2023-24, AQD regulated commodities namely; Frozen food items (5.909 M. Tons) through 06 release orders and collected an amount of Rs.0.00218 million as NTR and Ice cream (212.704 M. Tons) through 14 release orders and collected an amount of Rs. 0.0475 million as NTR (table No.12).

Table No-12 Import regulation by issuance of release order for frozen and ready to eat (RTE) products

Sr. No.	Items imported	2021-22			2022-23			2023-24		
		Qty	RO	NTR	Qty	RO	NTR	Qty	RO	NTR
1.	Chicken Sausages/ Cheese Franks	-	-	-	373.103	26	0.0894	-	-	-
2.	Frozen food items	-	-	-	68.245	63	0.0505	5.909	06	0.00218
3.	Ice cream	-	-	-	276.738	15	0.059	212.704	14	0.0475

\*Qty = Metric Tons (MT) \*RO= Release Order NTR=Non-Tax Revenue Receipt

### (M) Miscellaneous products

In FY 2021-22, AQD regulated commodities namely; Washed duck down feather (0.530 M. Tons) through 01 release orders and collected an amount of Rs. 0.0001 million as NTR, Inedible tallow (2,093.786 M. Tons) through 30 release orders and collected an amount of Rs. 0.0116 million as NTR and Castoreum (0.338 M. Tons) through 04 release orders and collected an amount of Rs. 0.0005 million as NTR, as detailed in the table no-13.

In FY 2022-23, AQD regulated commodities namely; Inedible tallow (1,845 M. Tons) through 40 release orders and collected an amount of Rs. 0.0151 million as NTR , Washed white goose down feather (3.724 M. Tons) through 04 release orders and collected an amount of Rs. 0.00718 million as NTR and Bakery enzymes (27.896 M. Tons) through 18 release orders and collected an amount of Rs. 0.00718 million as NTR.

In FY 2023-24, AQD regulated following commodities; Inedible tallow (2,586.51 M. Tons) through 31 release orders and collected an amount of Rs. 0.0129 million as NTR, Salted sheep & goat casings (60,774 Hanks) through 03 release orders and collected an amount of Rs. 0.00123 million as NTR, Washed white goose down feather (47.722 M. Tons) through 16 release orders and collected an amount of Rs. 0.00835 million as NTR and Castoreum (0.8419 M. Tons) through 03 release orders and collected an amount of Rs. 0.0005 million, as NTR ,as available in the table no.13.

Table No-13 Import regulation by issuance of release order for miscellaneous products

Sr. No.	Items imported	2021-22			2022-23			2023-24		
		Qty	RO	NTR	Qty	RO	NTR	Qty	RO	NTR
1.	Washed duck down feather	0.530	01	0.0001	-	-	-			
2.	Inedible tallow	2,093.786	30	0.0116	1,845	40	0.0151	2,586.51	31	0.0129
3.	Castoreum	0.338	04	0.0005				0.8419	03	0.0005
4.	Washed white goose down feather	-	-	-	3.724	04	0.00718	47.722	16	0.00835
5.	Bakery enzymes	-	-	-	27.896	18	0.00718			
6.	Salted sheep & goat casings							60,774 Hanks	03	0.00123

## CONCLUSIONS

The above data indicates a variable trend of livestock based imports that are mainly used for processing industry except food items. The major imports are dairy animals; dairy industry based items and skin as well as semi-finished/ finished leather commodities. The import clearance fee of the Animal Quarantine Department is very marginal in comparison to the volume of the exports that needs to be rationalized as per the latest market trends.

## RECOMMENDATIONS

Based on import data of 2021-24 of trade volume of various livestock origin commodities, import release orders and non-tax revenue generated by provision of state sponsored services indicates a variable trend of import of livestock and by-products to Pakistan. The following recommendations are made for all local industrial stake holders to reap the potential benefits of import substitution by industry localization:-

- i. Animal Quarantine Department needs to be further strengthened by capacity building of human resource by trainings, establishment of new facilities at point of customs frontiers and strengthening of existing facilities to meet the WTO/SPS standards
- ii. Coordination between provincial and federal components needs to be further enhanced
- iii. Introduction of new livestock breeds will promote the development of fattening farms resultantly increasing meat export volume with consumer selection options
- iv. Revision of existing legislation by notifying the revised Animal Quarantine Rules to make it compliant with WTO and WOAH requirements
- v. Strengthening of human resource as well as physical and technical infrastructure of AQD
- vi. Conduction of food safety awareness activities/workshop for producers/processors by Food Safety authorities and livestock departments to substitute the imported products by local production
- vii. The existing rates of collection of non-tax revenue receipts were notified in 1999 (except meat that were notified in 2008). Revision of rates as per the govt expenditure incurred on provision of quarantine and certification services is proposed
- viii. Sanitary harmonization of veterinary conditions with the exporting countries for the commodities being imported.

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## A COMPARATIVE UPDATE OF POULTRY PRODUCTION IN PAKISTAN

### ABSTRACT

Muhammad Shoaib Saleem<sup>1</sup> and Tabinda Khawaja<sup>2</sup>

This brief endeavour provides a comparative information of poultry sector of Pakistan pertaining to production of live birds, (Desi-D), Commercial-(C) ,Eggs produced both by D and C and poultry meat produced by both D and C Birds as Well as Day Old chicks (DO Chicks) for the recent years 2020-21 ,2021-22 and 2022-23 .A percentile increase (%) was also calculated for the readers of this effort. The data collected from 3-4 sources namely (i) Pak Economic Survey reports, (ii) Livestock Wing, Ministry of National Food Securities and Research (MNFS and R) , GoP, The Directorate of Poultry Research institute (DPRI) Rawalpindi (RwP) (iii) The Pakistan Bureau of Statistics (PBS) and the recent write ups (Text Books ) endeavoured during 2023 and 2024. The data compiled indicates an annual increase of poultry birds C+D (D chicks) and broiler grew@ 10.98% ,11.00% , 10.98% and 10.15% respectively.The poultry meat produced by C and D ,as well as eggs produced by layers D and C were recorded increased @10.23%, 10.97%, 10.18% and 10.68 respectively .While collectively DO Chicks poultry Birds (both D and C) eggs (both from D and C) and poultry meat also showed a positive growth of 10.98%, 10.93%, 10.58% and 10.91% respectively. The status provides literature supported potentials for making available the poultry meat and eggs for our people as well as exports of surplus items ,as demanded by brotherly Muslim countries and trade friendly countries .

Keywords : poultry birds , updates, poultry meat and eggs , produced in recent years, Pakistan

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### INTRODUCTION

As understood , poultry industry has been so developed that it can easily be declared as a separate entity and a fully grown to an independent status of an allied sector and an industry in the overall preview of Livestock , in an agricultural country like Pakistan ,as poultry industry is providing employment opportunities to at least 1.5 million people in the country .The investment span of this sector has been estimated at PKRs 1056 Billion (Bns) during 2022-23 and as compared to PKRs1027 Bns previous year and shown a record growth of 7.3%, over the last one decade (2013-2023), hence Pakistan achieved the 11<sup>th</sup> largest poultry producer in the world and futural prospects of further growth (PESR-2022-23) , in the coming years, inshallah.

This research cum investigative write up is limited to the comparative aspect of poultry industry's population , production of poultry birds (both at (a) commercial and (b) Domestic /Rural as well as Day Old chicks (DOchks), meat and eggs (both (i) table and (ii) hatching, in the recent years .

### MATERIAL AND METHODS

The data received from three different sources was excessively consulted and utilized namely:-

- (i) The Directorate of Poultry Research Institute (PRI) , Rawalpindi ,
- (ii) Pak Economic Survey Reports (PESRs) ,2021, 22 and 23.
- (iii) The Livestock Wing , Ministry of National Food Securities and Research (MNFS and R)

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- (iv) Govt. of Pakistan (GoP)  
Pakistan Bureau of Statistics (PBS) Recent years data of (2020-21), (2021-22) and (2022-23)

## RESULTS

### (a) Livestock Poultry Birds and DOchks:

The comparative picture of Poultry produced (livestock birds) was recorded as 1486.09, 1632.06 and 1792.46 million in the reported years 2020-21, 2021-22 and 2022-23 with an increase of 10.98% as can be seen in the table No.01. Simultaneously the DOchks have also shown an increase of 11% when the Nos of 1779.16 were compared with 1632.06 of the previous year..

Table No.01 The status of poultry production in the country for recent Years (2020-21) thru (2022-23)

Year	Poultry birds	Dochks	Broilers	Poultry
2020-21	1486.09	1470.38	1407.73	91.22
2021-22	1632.06	1617.41	1548.51	92.62
2022-23	1792.46	1779.16	1703.36	94.04
$\bar{x}$ % increase	10.98	11.00	10.98	10.15

Source–Pak.Economic Survey Reports, MNFS and R,GoP,Isbd

Table No-02 The status of Poultry meat and eggs produced with cost in recent years in the country (million PKRs)

Year	Poultry meat	Poultry meat	Eggs (D)	Eggs (C)
2020-21	0.127	1.68	4472	16797
2021-22	0.129	1.84	4552	17944
2022-2023	0.132	2.02	4634	19170
$\bar{x}$ % increase	10.23	10.97	10.18	10.68

Source–Pak.Economic Survey Reports, MNFS and R,GoP,Isbd

Table No.03 Combined status of poultry (both C and D) DOchks , eggs and meat produced in the recent years (million kgs)

Years	Dochks	Poultry birds	Eggs (million nos )	Poultry meat
2020-21	1504	1577.31	2126.9	1.807
2021-22	1651	1724.68	22496	1.97
2022-23	1813	1886.5	23804	2.15
$\bar{x}$ % increase	10.98	10.93	10.58	10.91

Source –Pak.Economic Survey Reports, MNFS and R,GoP,Isbd

The percentage increase of broilers produced also showed a similar trend of growth of 10.99% when the production of 2022-23 (1703.36) were compared with the previous year (1548.51 million).

The domestic poultry birds/ rural poultry was also recorded as grown to 10.15% when the data of 2022-23 (94.04 million) was compared with the previous years produced as 92.62 million (2021-22), as displayed in the same table No-01.

**(b) Poultry Meat and Eggs produced :**

Poultry meat produced was recorded, for domestic (D- Birds), to the tune of 0.127, 0.129 and 0.132 million tons for the three recorded/reported years 2020-21, 2021-22 and 2022-23 with the growth of 10.23% when the fresh data of 2022-23 was compared with the previous year 2021-22. while the commercial (C) poultry meat was recorded as 1.68, 1.84 and 2.02 million tons, with an increase of 10.97% (table No-02). The eggs produced from Domestic (D) were reported /recorded as 4472, 4552 and 4634 million for the reported year and growth appeared as 10.18% when compared while the eggs produced from commercial (C) poultry birds appeared as 16797, 17944 and 19170 for the three reported years, respectively with a growth increase of 10.68% (table No-02)

**(c) Cumulative poultry birds meat ,DOchks and eggs produced:**

An approach was made to combine both commercial (C) poultry birds (i) domestic (D) DOchks and (iii) poultry meat (both D and C) as well as (iv) Eggs produced by both C and D and the data revealed a percentile growth of 10.98, 10.93, 10.8 and 10.91, for DOchks, poultry birds, eggs and poultry meat respectively, as displayed in the table No-03.

## DISCUSSION

As poultry sector is growing sustainably, with the blessing of Almighty Allah (SWT) There is a working force of 1.5 million people and an infrastructure of 110 hatcheries, 125 feed mills, only in Punjab Province, with 2300 layers and 13865 broilers farms (with 4500 Environment controlled) in Punjab province only (PRI-2020), together with 4142 poultry farms in KPK, 19 feed Mills, 426 poultry feed dealers and 47 hatcheries of KPK (2020), supporting with similar infrastructure of Sindh Province while little lesser number of Balochistan and lastly scattered data from AJK and NAs/GB Pre-empt to make available the poultry meat as 10.76 kgs and 86.68 eggs per capita in the country. (Muhammad Hafeez and Muhammad Shoaib Saleem 2024). The high ups of the country are abreast with the production potentials of poultry sector, as well as an overall approach of “livestock economics and “Business Management Approaches in Pakistan” Muhammad Hafeez (2023). The Chambers of Commerce and Industry have developed 26 Business Facilitation Centres (BFCs) upto 10-01-2024 while on 22-02-2024 six more BFCs were opened (totalling -32) for traders and investors (both from foreign countries and at home). Various brotherly Muslim countries and friendly countries are benefitting from livestock and poultry products as rightly projected by Zargham Nawaz Butt et

al.(2024). Where a self-contained write up on exports of poultry and products have been high-lighted.

The data available in the Deptts. Annual Reports ,the project reports of National and Infrastructural level needs to be published specially .The Prime Minister’s initiative on Backyard poultry (PMIBYP-project ) 2029-2023(Tabinda Khawaja -2023) and the information contained in the write-up , “Poultry industries of Pakistan” (2024) by Muhammad Hafeez and Muhammad Shoaib Saleem need to be included and to be taught to graduate students for better awareness and for more inputs as an Impetus to the farmers , at production level.

## **RECOMMENDATIONS**

Based on the overview of the factual position of various ingredients of the poultry industry ,the stakeholders (farmers ,owners ,the labourers and all scientists involved in this sacred Business ,as need every appreciation , are ever supported for increased production to upscale the status of the country from 11<sup>th</sup> in the world to single digit , in the coming years, .With all our blessings as prayer and the overall kind and sustained Blessings of Almighty –Allah (SWT) .

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## A COMPARATIVE INVESTMENT APPROACH IN ECONOMICAL DAIRY UNITS OF 06 COWS/BUFF AND YOUNG C/B CALVES (YBC/YCC) ESTIMATES FOR #50 SUCH ANIMALS (2022 AND 2024-25)

Salman Hafeez and Uzma Kanwal

### ABSTRACT

In continuation with our previous efforts this article encompasses the growing of young cattle/buffaloes calves (yccs) / (YBC) obtained from within the Dairy-farm unit, either Foreign Direct Investment (FDI) or local investment, by the farmers (either credit obtained from a Bank (Bank loan) and/or own investment), with facilities of (i) Land (ii) Sheds/buildings and (iii) Other facilities of water-Supply feed/fodder and Animal Health Care Services (AHCSs). This effort is a comparative approach with the previous feasibility-based work Of 2020-21 and 2021-22 with an updated picture for the years 2022-23 through 2024-25 where in markets/and Deras prices of various kinds of animals (a) dairy cows/buffaloes; (b) yccs; (c) feed and fodder as well as (d) gawala salaries; (e) AHCSs; (f) Medicines and Vaccines used; and (g) miscellaneous expenditure on yearly basis, were made. The investment expenditure on economical dairy buffaloes unit of 06 (Model-I) with YBCs and (calculated for 50#) of such buffaloes, producing 40= 209 and 200 which are additional products on yearly-basis. A Break-Even stage is observed by the end of 3<sup>rd</sup> year where re-investment on operational cost is just equal to sale income of milk (as a Break-Even stage) as well as keeping YBCs. Thus growing ycc/ycb for 1-2 years fetch good prices, in Eid-ul-Azha days (when ready as mature-Dondas, in calves) which becomes an additional income for the farm. Simultaneously an estimated investment of 100# and 150# yccs/ybes has also be made for FDI and/or local investments, with good returns subject to availability of land, sheds, other buildings of drinking water-supply system and AHCS etc. All calculations (tabulated carefully) have been done on the market-retail prices obtained in these years. The article ends with encouraging conclusions and favorable recommendations, for a similar Model-II for 50# of such dairy animals keeping preferably in Lower/Central Punjab ,Pakistan .

Key words: growing ycc/ybe, Livestock Management, Dairy buff:/ cows, economical unit (06#) and (50#) investment.

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### INTRODUCTION:

This research cum investigative article is based on the recently conducted gallop survey of July-2022 (Eidul-Azha days) (info/livestock-LDF-2022), followed by another quick (follow-up) survey of 2024 Central and in Southern Punjab, for market prevailing rates of live animals (dairy-buffaloes/ (buff) and dairy cows with newly born young cattle calves (yccs) and young buff). Calves (YBCs), (info livestock-LDF-2024) kept in nearby farmers Deras, where infrastructure essential (shed and other buildings, and drinking water as well as facilities) were available ,for at least#50buff, and cows purposed to be kept , for milk production and production of calves ,supposedly @ 85% reproduction potentials while 1<sup>st</sup> purchase of dairy cows/buffaloes be with new born YCCs (young cattle calves ) and YBCs (50;50,male:female)

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This article is in continuation with the previous efforts made in 2021-22 and 2022-23 where developing of dairy buff:/cows farms was proposed for milk and production /growing YCCs/YBCs) for 1-2 years. The directly purchased such calves would cost at least Rs 30,000/- to Rs 40,000/- (of 6 months age), approximate, whereas this approach is based on production and growing own produced ycc/ybcs, at this proposed farm. The Livestock Production Farm Complex (LPFC).

Although the livestock population has shown 3.9% growth rate on an average (AV), the present cattle population has witnessed 7.5 million, in the reported year 2023-24 (PESR-2023-24) , amidst fragment slaughtering, feeding food streets arenas and restaurants together with sizeable exports of meat ( both beef and mutton) to Mid-Eastern countries such as UAE, Kuwait, Bahrain, KSA and China, as evidenced in recent reports ( AQD -2022-23 and 2023-24).

The average retail prices of live-animals in various 43 cattle markets of the country (Muhammad Hafeez-2022-23, 2023-24,) , the prices of sacrificial animals (specially males as Dandas-Two-Teeth, and Chogas-Four-Teeth) at the time of Eid-ul-Azha, as witnessed in July - 2024, showing increasing trends of market rates, as documentedand tabulated below.

Table No.01 Approximate cost of live dairy cows and buffaloes in Central and Southern Punjab for recent years (2022, 2023 and 2024)

Dairy Cows & calves	2022	Million PKRs 2023	2024
06# (av) PKR million =	175000/-	180,000	185000/-
@ 9 litres (i)	0.175	0.180	0.185
× 6=	1.050	1.080	1.110
@ 10 litres (ii)	0.180	0.185	1.190
x06=	1.08	1.110	1.14
@ 11 litres (iii)	0.190	0.195	0.200
× 6=	1.140	1.170	1.200
<b>For x50#</b>	<b>9.50</b>	<b>9.75</b>	<b>10.00</b>
B-buffaloes(calves)	0.210	2.30	2.50
@ 10 liters x 06=	1.260	1.380	1.500
@ 11 liters	0.240	0.250	0.260
X06=	1.340	1.500	1.560
@ 12 liters	0.250	0.260	0.270
X 06=	1.500	1.560	1.620
For X50# =	12.50	1.560	13.50

Table No-02 Average cost of feed and fodder in surveyed districts of central and southern Punjab in recent years

Feed items	2022	2023	2024	06 calves /buff
Green fodder	180/-	250/-	300/-	1/60
@(seasonal) 40 kgs				
Wheat Straw (Bhoosa)=	400/-	440/-	480/-	80
Wheat bran (choker)	1600/-	2000/-	2400/-	40/-
Concentrate feed (wanda)	2000/-	2200/-	2500/-	50
Wheat crushed	3200/-	3600/-	4000/-	1
Maize crushed	3000/-	3200/-	3600/-	1
Prepared silage	7200/-	800/-	1000/-	20

Table No-03 Investment/Expenditure on infrastructure (shed buildings +office + milk record room + feed store, and FYM pits with Equipment and water supply system

Infrastructure name	Cost in PKRs	Cost in million PKRs
<b>A- Construction</b>		
Animal shed 100×40sqft	1,60,00,000/-	16.00
Office+vety clinic (20×10=200 sq.ft)	8,00,000/-	0.80
Gawala quarters (25×50=1250 sq.ft) With mess/dinning Kitchen + washroom	50,00,000/-	5.00
Feed/Fodder store (50×20+1200 sq.ft)	40,00,00/-	4.00
Open Yard 2kanals (10880sq.ft)	06,00,000/-	0.60
Barbed wire + main gate		
Water supply system	03,00,000/-	0.30
Water tank+ Dug well, With electricity (complete fittings)		
Open Yard Mangers (Wooden-inoveable) #05(10 × 03 each) @Rs 20,000/- each	0.100,000/-	0.100
<b>Subtotal</b>		<b>26.80</b>
<b>B-EQUIPMENT</b>		
Vehicle-One (open -dalla)	20,00,000/-	2.00
Milk cans 03	12,000/-	0.012
Milk buckets 06 steel (12 litres)	25000/-	0.025
Fodder cutter (motorized)	30,000/-	0.030
Agricultural	2,00,000/-	0.20
AHPW-kit (120 items) (milk, vety : clinical items )	4,00,000/-	0.40
<b>Subtotal 2.664</b>		<b>Grand total 29.462</b>

Table No -04 Average income of milk and products sold in Central and Southern Punjab in recent years

Rural areas	2022	2023	2024
1 Fresh milk @ Rs/litre	120/-	130/-	140/-
2 Yoghurt	130/-	145/-	160/-
B.City /Town areas	125/-	135/-	155/-
3 Fresh milk	130/-	135/-	150/-
4 Yoghurt	135/-	140/-	150/-
(C )Big cities	130/-	135/-	150/-
5 Fresh milk	130/-	135/-	150/-
6 Yoghurt	140/-	145/-	160/-

The sale income has recorded in 2023 appears to [Rs.2,745@150](#) lacks and production of 18300 liters/year

Source= market rates prevailing, in different areas

Table no-05 Estimated expenditure\ investment on an economical dairy Buffalo unit of Buff\cows in southern/central Punjab -2024- and #50 Buff/cows.

Item(s)	Cost in PKRs	Cost in millions PKRs	#50	
i- 06 Buffaloes with calves 0.180/each	10,08,000/-	1.080/-	50.40	(0+90) @Rs
ii- shed buildings	available	available		
iii- water supply system	available	available	08	Gawalas
iv- Gawalas Salary one year)	2,40,000/-	0.240	1.920+2.46=3.38	@Rs20,000/=PKR(one
v- Green fodder (@400/40 kgs)×3265	6,57,000/-	0.657(say 0.66)		@30 kgs /day 300×6
vi- Wheat Straw @10kgs/day=200×6×365	4,38,000/-	0.440		@200/-
For 50 cows/buff seven gandas	3.38	53.38		
Item(s)	Cost in PKRs	Cost in millions PKRs	06#	#50
vii- wheat bran (choker) /@25×6×365 say 55000/-	54750	/-	0.0550	0.275 @05 kgs
viii- Vety -Medicine	20,000/-	0.020		0.100 and vaccine
ix- AHCSs (part time)	60,000/-	0.060		0.480
x- Miscellaneous				
(a) – kitchen		40,000/-	0.040	0.200
(b)- utility bills	20,000/-	0.020		0.080
(c)- shed equipment	30,000/-	0.030		0.150
(d)- milk cows		30,000/-	0.120	0.780
(e)- buckets		120,000/-	0.140	0.280
(f)- unforeseen		1,20,000/-	0.140	0.280
<b>Totale=</b>	<b>4.850,000</b>	<b>0.4850</b>	<b>2.345</b>	<b>(in One year)</b>
				<b>+53.38</b>
<b>Grand Total</b>				<b>55.725</b>

Table No-06- Income generated from the Sale of milk in the proposed dairy - farm (one year)-2024

Sale income.	Production	Sale @Rs 170/litres	MillionPKRs
i- Milk ( fresh) @11 litres /buff 11×06×305	20,130	34,22,100	3.422
ii- sale of calves =	not yet	not yet	
iii- sale of FYM=	not yet	not yet	
sale of Milk	167750 litres	34,22,100	3.422
<b>NB. YBCs now ONE-YEAR OLD</b>			
<b>-Buffaloes impregnated</b>			
<b>-birth expected next year</b>			

Table No-07- Reinvestment expenditure (operational cost) of 06 and 50 buffaloes and young Buff: calves (YBCs), for next year -2025

Cost PKR	Cost millions PKR	#50
i- feed and fodder (green + wheat straw+ bran)	11,06,000	1.106
of-six-buffs (green+bhosa+ bran)		21.900
ii-Feed + Fodder 6 YBCs	11,06,000	1.106
iii- Gawalas Salary	2,40,000	0.240
iv-AHCS	60,000	0.060
vi- VETY medicines	25,000	0.025
V- Misscalenous	1,50,000	0.150
		0.300 (a+b+c+d+e+f..)

Table No-08 Second years sale income of milk, FYM, Male calves etc-2025

Item(s)	Production (litres)	Income PKRs	Income millions PKRs	
(a) Sale of milk= @ 175/litres:	20130	= 3522750/-	3.523	(fresh) (litres)
(b) Sale of OBCs =	030	= 6,00,000/-		@Rs 2, 00,000/=03
(c) FYM (02 trolleys)= 02 trolley = @Rs 4000/each		8,000/-	0.008	(d) For 50 Buff= @ Rs 175/litres
	1,83,000	= 3,20,25,000/-	32.025	
<b>Subtotal =</b>		<b>=41,30,750/-</b>		<b>4.130</b>

Table no-09, Inventory of adults (much buff+YBCs) in 3rd year and operational cost - (projected for 2026).

Items	Production inventory	YBCs	Cost PKRs	Cost million PKRs	
1- Milch	6+3 =09	06/038:039	Nil	Nil	buffaloes
<b>2- Operational Investment</b>					<b>For 50#</b>
(a) Gawala salary	-	-	300,000/-	0.300	2.400 @25000/- PM
(b) Feed+fodder	-	-	13,14,000/-	1.314	15.40 9 adults @400/-
(c) Feed for 06 YBCs	-	-	06,57,000/- (say=0.66)	0.657	4.80 @Rs 300/- Day
(d) AHCs	-	-	60,000/-	0.060	0.150
(e) Vety. Medicines	-	-	30,000/-	0.030	0.150 + vaccines
3- Misscalenous	-	-	2,00,000/-	0.20	0.40 (a+b+c+d+e+f)
<b>Subtotal</b>			<b>33,74,000/-</b>	<b>3.374</b>	<b>30.00</b>

Table no -10 estimated investment/expenditure on 50 cows/Bufaloes kept for milk production and yccs/ybcs produced in Central/Southeren Punjab (2023-24-25-26)

Items	1 <sup>st</sup> Year(2022-23)	2 <sup>nd</sup> Year(2023-24)	3 <sup>rd</sup> Year(2024-25)	
i- Cost of Dairy Cows/Buf	13.50		14.00	14.50
ii- Feed & fodder	6.40	7.50		8.50
iii- Gawala's Salary	1.90	2.10		2.22
iv- Miscellaneous	2.35	2.50		2.80
	24.15		26.10	28.02
v- Sale income of milk	28.30	28.30		32.50
vi- Production of calves @85% production	202.1+22.01	220.1+202.1		220.1+202.1

## Break-Even-Stage

In just 2nd year the sale income is equivalent to reinvestment for one year period with additional production of ybs, 200+202.

An approach is being sounded for Foreign Direct Investment (FDI) in livestock sector, but as Livestock Sector Personnel (LSPs) we need to make readily available homework, if some of the FDI individuals and/or groups are interested to invest in livestock sector (i) live-animals; cattles, buffaloes, sheep, goats (ii) dairy cows/buffaloes, (iii) milk production, (iv) meat production ( both beef and mutton) , specially growing sheep(Rams) and Goat ((bucks) to the age of one year/ or 1-1/4 years, ready for sacrificed purpose in Hajj season, to be provided to KSA as already proposed in his book "Investment in Livestock Sector" by Muhammad Hafeez (2014) and

re-iterated in his book " Livestock and it's alied industries of Pakistan -2024) as well as proposed in a project proposal, under consideration in the Federal Govt PSDP ( 2024-25---2029-30), the Livestock Economics and Business Management approaches Project (LEBMAP) , and so on.

## Material and Methods

This article is developed based on the following documents, reports and recently conducted survey reports:

- i- prevailing market rates of live- dairy animals July -2024
- ii- prevailing feed/fodder market rates in surveyed areas (08-09 districts) of central and Southern Punjab (July -2024
- iii- prevailing sacrificial animals rates at the time of Eidul-Azha( June- July - 2024)
- iv- Pak Economic Survey Reports (2022-23) and (23-24) GoP-Isbd
- v- AQD's recent Working Reports (2022-23)
- vi- Food streets -Pakistan (Vlogs, Videos and Food restaurants (2022- 2023- 2024))
- vii- Media reports on Milk and Meat, at home and abroad (2020-21, 2021-22, 2022-23 and 2023-24)

## RESULTS

### 1. Cost of live dairy/cows/Bufaloes

The average cost of dairy cows/buffaloes at various village Deras, was recorded as Rs 0.175, 0.180 and 0.185 millions for the year 2022, 2023 and 2024 respectively, with at least 10 liters of milk/day with new-born calves and hence one truck load of 06 such cows/buffaloes were calculated and for 50 such animals with simple calculations while with 11 liters for the three reported years averaged as Rs 0.190, 0.195 and 0.20 million. The cows rates were lower than buffaloes by Rs 0.02-0.025 million each, as detailed in table No-01

### 2- Cost of Feed/fodder

As per record available and averaged the green fodder (i), wheat straw(ii), wheat bran (iii), conc;feed /wanda (iv), wheat crushed (dalya) (v), maize crushed (vi) and prepared dried

silage (vii) appeared as Rs 180-200 per 40 kgs, 400, 1600, 2000, 3200, 3000 and 720 for the year 2022 whereas for 2023 these amounts recorded were Rs 200-250, 440, 2000, 2200, 3600, and 3200 and 800 for food and fodder items (i) thru (vii) but these rates for 40 kgs as averaged were to Rs 250-300, 480, 2400, 2500, 4000, 3600 and 1000 in the year 2024, respectively, as described in table No-02. The average cost of feed/fodder, calculated, was Rs 300-350/day as per daily requirements, hence calculated for 50# such animals, amounting, in the same table No -02 respectively.

### **3. Investment/Expenditure on infra-structure and Equipment**

Those farmers/investors who want to begin a dairy farm, need to invest at least Rs 26.80 millions on infra-structure (A) as detailed in table No-03 items No (i) thru (vii) while the Essential dairy Equipment (B) requires at least a sum of Rs 2.664 millions for items (i) thru (vi) jotted down in the same table No-03, respectively.

### **4. Average income of sale of milk and products**

The data available, as per quick survey of such dairy-farms, the rates of fresh milk (farm gate price) while sale and retail is separately recorded ,as Rs 120/= litre and Rs 130/= litre for 2022; while Rs 140/-/and 150/= in 2023 and Rs -170/-litre in 2024. These rates were hardly increased by Rs 05-06 per liter in these years in small towns in Central+ Southern Punjab whereas these rates in big cities and towns were enhanced by Not less than Rs10/= liter to Rs 15/= liter as recorded in table No -04. The rates of yogurt have simultaneously been recorded.

### **5- Estimated investment/expenditure on such dairy-units (of 6-buff:/cows and for 50#) for One-Year**

For dairy farms who have already available dairy sheds, infrastructure (other buildings and water-supply system, the investment expenditure on 06 cows/buffaloes with cost of dairy animals and feed/fodder plus gawalas salary appeared to be Rs 2.42 million and for 50 such dairy animals (cows+buff:) appeared as Rs 55.78 million, as can be seen in table No-05.

## **6 - Sale income from milk in next one year ( 2024)**

The sale income from 06 such cows/buff: @11 liters/day with a farm gate price of Rs.160/= liters was as per sample calculation (of  $6 \times 11 \times 305$  days) producing 20130 liters/year, fetched Rs.3.22 million and for 50 such dairy animals (cows/buffaloes) fetched Rs 26.84 million on a total production of 167750 liters/lactation (305-days/years), as presented in table No -06.

## **7. Re-investment/operational charges for next year**

As we have already calculated the operational cost in terms of (a) Feed/fodder, (b) Vety medicines , (c) AHCSs, (d) miscellaneous expenditure (on kitchen+ utility bills+ shed equipment (disposable) and unforeseen), in terms of re-investment on feeding 06 cows/buff ,as well as Young calves (both yccs/ybcs), to the tune of Rs.2.687 million and with simple calculations Rs 24.450 million for 50# of such dairy animals, as reflected in table No-07.

## **8. Second year's / next-year's sale income of milk**

The estimated sale income of milk, in next year (2025), the sale income of 20130 litres of milk from 06 cows/buffaloes, with a reasonable farm rate of Rs.175/= litres ,came to Rs 3.5 million while for 50 such dairy animals, the income appeared to Rs 32.025 million on a total production of 167750 litres with a reasonable rate of Rs 175/= litre, as presented in table No - 08.

## **9. The inventory of live animals (at the farm) and projected operational cost for 3rd year (2025-26)**

It is understood that the dairy animals were purchased with newly born calves, the second year showed impregnating such cows /buffaloes while yccs, were of One-years age, hence the inventory of animals was  $6+6$  yccs= 12 and @85% fertility/ reproduction by the end of 2nd year and/ or start of 3rd year (new birth was expected). In 3rd year another crop of yccs expected which increased the inventory to  $6+6 + (6\text{yccs})$ . The operational expenditure then was accordingly estimated to the amount of Rs 3.374 million for six-dairy cows/buff: (model-I) and simultaneously for 50# such (model-II), this operational

amount came to Rs 30.00 million ( this included 20#yccs as well (table No-09) which as year-wise included in table No-10, respectively.

### **10. Break -Even Stage**

This stage as per management sciences, has always been reached by the end of second year, with those farmers who have infrastructural availability, the next stage is achieved after 4th year when the expenditure on infra-structure is met 50% in 2nd and 50% in 3rd year.

### **CONCLUSIONS**

Based on the estimated investment/expenditure and in the light of prevailing market rates of live dairy animals (cows/buff:) and fresh milk, in Southern and Central Punjab, the following conclusions are made:-

- i. Those farmers who have available necessary infrastructure the investment is beneficial and with positive margins.
- ii. The comparative cost being cheaper in southern and central Punjab, although rate of fresh milk brings lesser income but the feasibility attracts investment.
- iii. The Break-Even stage is achieved by the end of second year Or in the beginning of 3rd year.
- iv. The yccs, ybcs, can be available without any extra cost and only with growing operational cost these can fetch better price.
- v. Taking in consideration the 06-cows/buffaloes dairy animals -model -I, 50# such cows/buffs: farm complex can be developed with production of Milk and yccs/ybcs production in the coming years, with tangible Return on Investment.

### **RECOMMENDATIONS**

Farmers and investors are advised to play a kee role in livestock production towards increased milk and yccs/ybc and become potential farmers, enjoying a real business in the country with

tangible Return On Investment (ROI), as evidenced.

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## A RECENT PICTURE OF MARKET PRICES OF LIVE SACRIFICIAL ANIMALS AND FEED/FOODER IN RWP-ISBD TWIN CITIES – (2024), AS COMPARED TO 2023

Uzma Kanwal<sup>1</sup> Muhammad Hafeez<sup>2</sup> and Salman Hafeez<sup>3</sup>

### ABSTRACT

This article is based on quick survey report(s) of live sacrificial animals specially males A- Dondas (two-teeth) and (B)- Chogas (four -teeth), conducted in the Eid-ul-Azha Days (July -2024), as compared to the previous year's data (2023). The average prices of A were recorded increased (↑) by 10.53% and B- were recorded as increased by 14.285% (↑), in the Rwp-Isbd twin cities annual markets arranged for Eidul-Azha days. The Survey Reports of bigger markets of Southern and Central Punjab revealed increases of 5.88% (↑) in A and 5.55% (↑) in (B) categories of these sacrificial animals. In addition the feed/fodder showed an av. increase of 20%(↑) in chopped green fodder specially in Eidul-Azha days, while unchopped also showed 10.53% increase (↑), as compared to Normal days , likewise wheat bran (chokar) and Maize(crushed), showed increase @5.5% ↑ and 4.5% ↑ respectively. During the finalization of this article the prices of maize crushed were recorded dropped by 9.09% ↓ in Sept-2024, as reported. The article provides positive recommendations for farmers.

Key words: sacrificial animals , retail prices, feed/fodder , Pakistan

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### INTRODUCTION

As per yearly routine of Livestock Development Foundation (LDF), data on Live-animals along with feed/fodder with particular reference to Eidul-Azha days, the retail prices of sacrificial animals as well as Feed/Fodder shoot-up, in the wake of demand-and-supply principle of Economics . In our previous efforts of (2021) PJLSc Volumes XIII, (2022); Volume XIV PJLSc, and (2023) Vol-XV, in various articles published, an increasing trend was recorded, but with a slowly increasing speed, not more than 7-8% in Southern and Central Punjab while increases in prices of such animals have been recorded @15-16% on an av. in Rwp-Isbd twin cities bigger animal markets.

Market prices started showing increasing trends with the increase(s) in cost of transportation, based on fuel prices increased ( both diesel as well as petrol) since 2023 (March – April) and again in July -2023 thru June-2024, weekly/fortnightly increases) notified in the Media (print) as well as all TV channels.

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### Quick Example

One truck load of 09 sacrificial bulls/cattle, from Layyah to Islamabad used to cost Rs32,000/- (one-way) in 2022-23 which shooted up in July-2024 to Rs42000/-, as observed in the Ijtemai-Qurbaani (the combined-shared sacrificial practice), prevalent at many places in Muslim World and Pakistan being No exception. This is one of the main reasons behind price-increase. The second main cause of increase in such prices is attributed to feed/fodder cost, though not highly increased in Southern and Central Punjab, (say 03-3.5% increase) but slightly more increase in bigger cities/towns market, especially in Eidul-Azha days, as recorded. The third reason being the labor cost in the (i) agricultural fields where fodder is harvested, loaded and sometimes dumped, dried for silage making and (ii) cost of labor in transportation (loading/un-loading in the trucks/trolleys) and lastly (iii) the chopping of green fodder in the main chopping sale-points where the cost of 40kgs (one mond) increases by Rs40-50/- per 40kgs, and retailed.

### MATERIAL AND METHODS

This article is mainly based on the following data and information :-

- i. Quick Survey conducted by LDF team in 2023 and 2024.
- ii. Survey conducted in Central and Southern Punjab. (Various distts)-2024
- iii. Prevailing market rates of Rwp-Isbd. rural areas.
- iv. Electronic and print media reports on price hike of electricity and fuel.

### RESULTS AND DISCUSSION

#### RESULTS

1. As per recorded information, the prices of sacrificial animals A-Dondas (two-teeth) averaged appeared as Rs2,10,000/- (2024), as compared to Rs1,90,000/- (2023) weighing on an Average Body Weight (Av.B.Wt.) of 150+ 160kgs (say upto 04 monds. The increase was recorded as 10.53% ↑ whereas in the Second category of B-Chogas (four-teeth) averaged, showed prices of Rs2,40,000/- in 2024, as compared to Rs2,10,000/- in 2023 with an increasing trend of such prices to the tune of 14.285% ↑ respectively, as detailed in table No-01.

2. The gallop survey carried out in Southern and Central Punjab ,revealed av. prices of A-Dondas as Rs1,80,000/- in (2024), When compared to Rs1,70,000/- in 2023, showing an increasing trend of 5.88% ↑ whereas in the category- B (Chogas) showed av. Prices of Rs1,80,000/- (2023) and Rs1,90,000/-(2024), with an increasing trend of 5.55% ↑, respectively. The av.B.Wt. of Dondas was recorded as 170kgs while the Chogas averaged 180-200kgs, as displayed in table No-02.
3. The reported retail prices of green fodder (chopped) in normal days, as well as Eidul-Azha days were recorded (for 40kgs) as Rs400/- and Rs480/- with an increase of 20% in specific sacrificial days whereas in the case of unchopped green fodder the rates were increased by 10.53% ↑ (2024) simultaneously the wheat bran (choker) and Maize crushed showed an increasing retail market trends of 4.5% and 5.5% ↑ in July-2024, but maize crushed suddenly showed a decreasing trend in Sept-2024( when this article was being finalized) to the tune of 9.09% ↓ , as appears in table No-03.

## **DISCUSSION**

Prices of live animals, especially sacrificial large animals had been and are still being on the increasing trend since many decades: not only in bigger cities of Rwp-Isbd. Lahore, Karachi, Faisalabad, Multan, Gujranwala, Sialkot and others but middle-range cities and towns have also witnessed this trend, continuously.

Example- the prices of milk cows on an average, were Rs24,000/- to Rs25,000/- with a production of 9-10 litres of milk/day while a Buffalo was easily available with an av.cost of Rs30,000/- to Rs32,000/- with an av. Production of 11-12 litres milk/day, in Central Punjab 2001-02 Okara, Sahiwal, Arif-wala, Cheecha watni and surrounding Neeli-bar area (in between river Ravi and river Sutluj). The milk rate was Rs10-12 per litre in that area in the year 2001-02 while this rate was Rs28,000- Rs-30,000/- for such cows and for buffaloes @Rs33,000/- to Rs34,000/- in Rwp-Isbd. (including transportation cost per truck as Rs4000-5000/- per truck load of 06 such cows and buffaloes ( along with cattle/buff-calves each). The cost of feed/fodder was also very cheeper even in Rwp-Isbd. as was recorded @Rs40/- per 40kgs in the year 2004 and the fresh milk rate was @Rs18/- per liter in rural areas. (The author No-2) also remained a dairy farmer in rural Isbd. (2004-2005). From this year onwards increasing trend started.

The increasing trend continued after each passing year as documented in same of our publications of Pakistan Journal of Livestock Sciences (PJLSc) since 2009 onwards 2010, 2011,

2012, 2013, 2014,(various volumes)..... and now after one decade (2024) the prices of live animals have been doubled, as compared to 2014, as well as the prices of milk are now prevalently recorded as Rs220/- per litre , in Rwp-Isbd. twin cities (fresh milk), in the year 2024.

Same is the case in meat (both beef as well as mutton), as 70-80% increased over 2014-15, rates , in almost all bigger towns and cities while rural towns and cities are not an exception.

Table No-01 Quick Survey Report of live sacrificial animals in Eidul-Azha days (July -2024) in Rwp-Isbd-twin cities (as compared to 2023)

Type of animal	Av.B.Wt.	Av.price (Rs) 2023	Av.price (Rs) 2024	%increase
Dondas (two-teeth)	150-160kgs	1,90,000/-	2,10,000/-	10.53
Chogas (four teeth)	180-200kgs	2,10,000/-	2,40,000/-	14.285

Source -market rates Rwp-Isbd, info/Livestock LDF-Isbd

Table No-02 Gallop survey reports of live sacrificial animals in Southern and Central Punjab, after Eidul-Azha (July 2024)

Type of animal	Av.B.Wt.	Av.price (Rs) 2023	Av.price (Rs) 2024	%increase
A. Dondas (two-teeth)	170kgs	1,70,000/-	1,80,000/-	=5.88
B. Chogas (four teeth)	180-200kgs	1,80,000/-	1,90,000/-	= 5.55

Source -info/Livestock LDF-Isbd

Table No-03 Quick Survey Report of feed and fodder prices in Eidul-Azha days (July -2024) in Rural Rwp-Isbd twin cities

Food item	Qty =(kgs)	Normal days (Rs)	Eidul-Azha days(Rs)	%increase (↑) decrease(↓)
i. Green fodder	40	400	480	20%↑ (chopped)
ii. Green fodder (unchopped)	40	381	420	10.53%↑
iii. Wheat bran (chokar)	40	3600	3800	05.5%↑
iv. Maize crushed	40	4400	4600	04.5%↑
v. Maize crushed (Sept-2024)		(Normal days)	(Normal days)	sept-2024)

Source= market retail prices, Info/Livestock LDF-Isbd

## CONCLUSION

It is very safely concluded that

- Increasing trend has been recorded in live sacrificial animal prices in two different categories of Dondas and Chogas, in Eidul-Azha days in 2024.
- Moderate to medium rate of increase, in percentile, was recorded in (2024) when compared with 2023 prices.

- iii. Cost of feed/fodder was also recorded showing slower rate of increase in 2024 when compared to 2023 rates.
- iv. A decreasing trend was recorded in Sept-2024 in crushed maize while it was on the increasing rate in July -2024only due to the fresh crop of maize.

## RECOMMENDATIONS

- Amidst increasing trends of cost of live sacrificial animals feed and fodder the livestock farmers are still encouraged to keep growing/producing live animals to get better prices in the Eid-ul-Azha days in 2025.
- While the livestock farmers are advised to purchase feed/fodder on whole-sale prices to remain economical in feed and seasonal green fodders, for silage and hay-makings, to be used in off-seasons

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## COMPREHENSIVE TRAINING MATERIAL TO BE USED IN OFFICES AND FARMERS LEVEL IN LIVESTOCK PRODUCTION AND HEALTH

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### ABSTRACT

This article describes the comprehensive package of Training Material (taught), to be used in two different categories, of training Programs (TPs), namely (A) for officers level (a- Veterinary Officers-VOs (b) Livestock Production Officers (LPOs) and (c) Animal Sciences graduates (AScG) as well as (d) Veterinary Assistants (VAs), (e) Stock Assistants (SAs), (f) poultry Assits (PSs) and (g) farmers in the discipline of Livestock discipline of Livestock Productions and Animal Health (LPAH) for at least One Month (30 days) duration. The Books already Publishing being used in (A) officers Category include (i) Livestock and its allied industries of Pakistan (2023), (ii) Livestock Economics and Business Management Approaches, (iii) Livestock micro Economics (2014) (iv) Economic losses due to Livestock diseases in Pakistan (2016), (v) Investment in Livestock Sector : A Real Business in Pakistan (2014) and (vi) Rural Development and Poverty Reduction in Pakistan (2021). The Training Manuals being used for (B) SAs /VAs Para Vets and farmers include (i) Animal Health and Production Workers Training Manual (AHPWTM) (2021), (ii) Participatory Training Manual for RD Workers (2014), (iii) Artificial Insemination Training Manual (AITM) (2016), (iii) Dairy Farming (2016), (iv) Poultry Industry –Urdu ( Sanaate-e-Murghbani)- (2023) and Broiler Production-Urdu (Ghosth Ke Leay Murch e Poalna –(2016) all ISBN- Regd., and available with Author – CE- FCS- Isbd on cost basis.

**Key words :** Training material, Books and Manuals , Livestock Production Animal health , Pakistan

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### INTRODUCTION

Training aspects in Livestock Production and Animal Health (LPAH) have been of great importance, specially short trainings, to equip young graduates namely (a) Livestock Production Officers (LPOs) and (b) Veterinary Officers (VOs) organized on National or Provincial levels, for a shorter duration (say one –month-30days), simultaneously such training are equally important for paravets (SAs/VAs/PAs/) and livestock farmers, namely (i) already involved and (ii) beginner farmers as well as progressive Livestock Farmers (PLFs) in the country and abroad.

Short trainings had been a regular and/or periodic feature of Livestock and Dairy Development Departments (DDD) in Provinces, at Lahore (Punjab), Peshawar (Khyber PK), Quetta (Balochistan) and Hyderabad (Sindh) as well as National Agricultural Research Centre (NARC), Islamabad; Animal Health In-service Training Institute (AHITA). Peshawar, Directorate of Livestock Production Research Institute (DLPRI), Bahadur Nagar including Agricultural Training Institute (ATI-Peshawar) and National Rural Support Program (NRSP), now known as National Institute of Rural Management (N-IRM), Islamabad. (2020) (2021) (2018) (2015)

International Agencies/organizations had also been involved in organizing such trainings namely, Food and Agriculture Organization (FAO), United Nations Development Program (UNDP) and Agricultural Development Bank (ADP) supported

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with Asian Development Bank (ADB) and United States Assistance for International Development (USAID) .(2005) (2013) (2008) (2021) etc.

For each and every such training, financial resources have been the main constraints which comprised the (i) cost of training material ,(a) the books for officers level and (b) training manuals for farmers).(ii) remuneration to Resource Persons (RPs) (iii) pocket money to trainees and study tours of trainees to the Departments (i) govt. Deptts/Institutions and (ii) Private sector processing Units/milk plants and, (iii) feed mills etc).

The write-up envisages the training material,the recently developed with updated information which provides fresh knowledge ,recent market rates of the livestock ,the livestock economics and Business management approaches and Good Management Practices (GMP) etc.when each of these books and manuals are content-wise discussed , briefly, but important material for the benefitsof trainees.

### **TEXT MATERIAL FOR LPAH TRAININGS**

The following (a) Books and (b) Manuals are recently developed and ready for use in any of the proposed trainings . These books and manuals are recent endeavors of the Team of researchers of Farsalan Consultancy Services (FCSc) Islamabad and Livestock Development Foundation (LDF) Regd, Islamabad, and are available on cost basis.All of these Texts and manuals are ISBN-Regd, with the National Library of Pakistan (NLP) , Islamabad:-

#### **(a) TRAINING TEXT BOOKS FOR OFFICERS LEVEL**

- i. Livestock and its Allied Industries of Pakistan –ISBN-Regd-978-969-9219(2024)
- ii. Livestock Economics and Business Management Approaches ,in Pakistan –ISBN-Regd-978-969- 9219-(2024)
- iii. Poultry Industry of Pakistan ISBN-Regd-978-969-9219, 10-15, (2024)
- iv. Economic Losses Due to Livestock Diseases IN PAKISTAN ISBN-Regd-978-969-9219-04-7, (2014)
- v. Livestock Micro Economics ISBN-Regd-978-969-9219-10-1(2014)
- vi. Investment in Livestock Sector,A Real business in the Pakistan, (2014)
- vii. Practical Work on Feasibilities and Reaserch in Livestock –Pak Journal of Livestock Sciences , (PJLSc) on hand Training (literary work)

#### **(b) TRAINING MANUALS FOR PARA-VETS.AND FARMERS**

- i. Animal Health and Production Workers Training Manuals, Urdu (AHPWTM) , ISBN –Regd-978-969-9219, -(2020)

- ii. Artificial Insemination Training Manual (AITM)-  
ISBN-Regd-Urdu-978-969-9219-(2011)
- iii. Participatory Training Manual for RD Workers (PTM-RDWs) –ISBN-  
Regd-(2012)
- iv. Sanaat-e- Murghbani-Urdu, ISBN –Regd-978-969-9219-(2024) Poultry  
Industry of Pakistan
- v. Broilers Production (Farming ,Feeding, AHCSs and AHCSCH etc).
- vi. Dairy Farming –Urdu-AIOU Book Series (2016) , by Dr M.Hafeez  
Author

### **BRIEF INTRODUCTION/ CONTENTS OF THE TEXTS**

Although most of the books /Training Manuals have been reviewed, critically by the learned referees/reviewers and published in Pak.Journal of Livestock Sciences (PJLSC) ISSN –Regd. Encoded 2027-933 x(Print) and online -2521-8697,various Volumes (Vol-XV, No.15, Dec-2023) Published, captioned as “BOOK REVIEW “ From time to time .

#### **(A) Officers Level Training Material**

##### **(i) Livestock and its allied Industries of Pakistan (2024):**

This is recently developed (4<sup>th</sup> edition) of series of Livestock industry endeavoured (2008), 2010 and 2011) , as per demand of various University Academia and new students in livestock sciences both at DVM , MSc (Hons) and PhD level as well as Animal Sciences .This book chapter wise, comprises of recent data of livestock production population, by-products, in the recent years , 2020-21,2021-22 and 2022-23, updated informations on feasibility preparations, potentials of milk and meat produced Poultry industry of Pakistan and various livestock products included by the processing units, with special reference to feed management and housing and Good Management Practices (GMPs), followed by Animal Health care Services (AHCSs) , the diseases,with Vety .drugs /medicines and vaccines .Lastly the livestock trade and Animal Quarantine Deptts. (AQDs) activities on imports and exports of livestock products supported with developing feasibility for farming. Some of the published research work is also supported for updates.

##### **(ii) Investment in Livestock Sector: A real business in Pakistan (2009) :**

This effort is although a decade and half old but it is still a valueable informative Text Book (200 pages) envisages chapter wise, the livestock sector overview, investment in eggs and meat production.New approaches in livestock feed and fodder ,understanding by-products and marketing ,investment opportunities in various sub-sectors of livestock in

Pakistan with essentials of housing requirements in livestock productions. Investment in various areas for RD and Poultry Production and lastly a modal of feasibility for getting loan /credit from financial institutions/banks , is incorporated.

**(iii) Economic losses due to livestock Diseases in Pakistan:**

This book was added in the training material in the year 2010. Which was used for various programs providing health aspect of livestock, chapter wise provides information on importance of Animal Health in Livestock development, with an overview of GOP efforts in this connection. The second important aspect was to provide information on Federal and Provincial Departments. The Veterinary Research Institutes (VRIs) in Lahore, Peshawer , Quetta, RWP, NVL Islamabad, ASI , NARC and other related entities in the country . Microbiological origin (bacterial) prophylactive vaccines used. The viral diseases of importance (endemic) in the country (with the control and eradication measures) , killer diseases and transboundary diseases. The important chapter of parasitology , followed by the disease of poultry (bacterial, viral , parasitic and mycotoxins discussed; An important chapter attributed to both clinical and preventive medicine oriented disease with economic losses (in cattle , sheep/goats and poultry) with an exclusive chapter on poultry disease (bacterial and viral ) endemic ( at least 20 of them) discussed , control and eradication measures suggested with vaccination and vaccines ; Lastly a stress factor ( in all domestic animals) has also been discussed .

**(iv) Livestock Micro-Economics -2014.**

This important training Text-book (273 pages ) was written on the request of some of the academia involved in the area of livestock Economics and business management in the degree program of the MBA-Livestock in various universities at home and abroad . The chapter wise efforts include micro economic principles involved in livestock production and animal health , followed by micro-economics of milk and meat production. The macro, and micro economic principles in larger production units such as , milk plants processing , plants of livestock products (hides , skins , casings , guts , bones and byproducts etc) . The book also puts light on imports and exports of livestock trades , where microeconomics plays its role at home and abroad . Lastly the chapter on ‘Livestock to the year 2030’ was specifically endeavoured to forecast the production potentials which has almost coincided to the date (2024) with its annual growth viz - a-viz human population of the country .

(v) **Livestock Economics and Business Management –(2021) (315 pages)**

A recent effort made in the wake of recent burning issues on livestock economics ,as well as, business management , as graduates with degrees of basic economics (specialized in agriculture and or livestock) from various universities, at home and abroad .The chapter wise approach includes .Importance of its introduction (with livestock sectors overview as of 2020-21, based on documented data as compared to previous year.(with academic functions of ,goals and classification of livestock).

The second chapter briefly describes meat and milk business management . Its economic aspects and total produced milk and meat (beef) mutton and poultry meat) and by products .

Chapter three provides important information and procedures of credits/loans access, in livestock business along with markets and marketing system , with R and D aspects discussed .

Chapter 4 provides macro economic principles involved in livestock production (principles , stages of production ,capital/financial management ,accounting system and over all farm management.

Chapter five provides academic and practical details of housing requirements for dairy sheep/goat ,poultry and multiple purpose farms .costs ,infrastructure ,equipment and markets in the country including provision of veterinary drugs medicines, vaccines used at the farms .

Chapter six envisages the details of livestock by-products (bones , hides , skins guts/casings /leather , wool and hair) and related products as well as value addition in edible products and lastly poultry production also added .

Chapter seven pertain to developing a feasibility on commercial lines (detailed ABCD of body language and contents of feasibility together with projected financial aspect of initial year (first investment) . Followed by income and expenditure (up to 4-5 years) and plan of work with pay-back of loan /credit , supported with financial analysis for the pre-empted reviews and appraisal (by the financial institutions/banks). Lastly , all annexure of the feasibility (i to x) be appended ,as documents.

Chapter eight provides investment opportunity of investment .(both of academi and practical importance of investors/beginner farmers) .In each and every component of livestock sector in the country .

Chapter nine pertain to livestock trade and its regulations to make abreast our readers/ the farmers and traders , for local and export oriented trading.

Chapter ten was exclusively written on enquiries by academia and graduate students to include feasibility for income generation on fruits

and vegetables in a combined approach and /or multipurpose farming and / or livestock farm complexes , where Livestock, sheep/goat, poultry and agricultural seasonal production could be carried out , as is the practice now-a-days.

Chapter eleven and twelve describe exclusive plan of work included in the feasibilities, of an economical farm of 06 dairy cows/buffaloes , sheep/goat flocks and growing male calves for meat production (beef ) as well as poultry farms , at house-hold level along with value addition in meat and other products while the last effort made was feasibility cum plan of work in RD and poverty reduction approaches for rural communities /NGOs towards developing (i) Women Centres, (ii) cutting and stitching new clothes centres, (iii) knitting, (iv) embroidery , (v) décor ,(baby dolls , h/h items) (vi), applique work and (vii) chemical work /flower making etc ) for income generating on self –reliance basis , as well as (viii) ready made garments and boutiques etc. Each chapter is supported with self-assessment questions and references on the subjects.

**(vi) Rural Development and Poverty Reduction in Pakistan: (2021)**

**178 pages**

This effort ,spread over nine chapters , was made on the demand of academia and the students, (both graduates and post graduates ) , of various universities at home while specifically the requirements of various NGOs working in rural communities , as an ISBN-Regd-book .This encompasses chapter wise the (i) overview of RD and poverty reduction in the country with socio-economic intervention of private sector and the govt. (both Federal and Provincial ) , women and Gender issues (iii) NGOs and community Development , organizational challenges and credibility also followed by (iv) Population growth ,infant mortality and skill development,Technical Vocational Educational Technology (TVET) training of manpower towards Human Resource Development (HRD). With financial assistance Programs ., (v) Women development (empowerment Acts Baital Mal intervention and Financial assistance in .Livestock farming ,sheep/goat, poultry commercial/rural poultry , the supportive efforts of SMEs, SMED and self reliance based economic activities , Govt. initiatives for poverty reduction with the role of Cos/CBOs/NGOs in RD.The last four chapters deal with the areas of projects in RD namely (Primary Education ,primary health ,safe drinking water and poverty alleviation, by the NGOs) followed by the salient features of NGOs /CBOs/COs, various documentation and Acts involved for functioning and Govt. Department's coordinating in RO. lastly the financial assistance to NGOs/CBOS/COs for community development as

well as international organizations supporting RD, in the country is proposed:-

**(Vii) Pakistan Journal of Livestock Sciences (PJLSc) ISSN –Regd. Encoded 2077- 933X print and online 2521-8697 .(recent Vol-XV- No-15, (2023)**

This will be an orientation with this effort. As PJLSc since its initial efforts, in 2008 and first published in 2009.Vol-I,No-01,2009 and various volumes with Editorial Board (EB) .The copy right and Editorial Team (Ed.Tm)/ and Editorial Board (E.B), Research Associates and co-Editors , as well as respected referees (both at home and abroad), devoting with this sacred endeavour ,on gratus basis /honourary basis .To encourage trainee officers towards Research and Development (Rand D) and literary work, of writing Research /Review articles.

**(vii) Practical work**

This is a weekly 2-3 hours combined / group activity in the following two areas:-

- (a) Preparation of feasibility for farms and processing units (with group task)
- (b) Project preparation on any aspect – of livestock Production and animal health – (with group task)

**B-** The training manuals for VAs/SAs /PDAs and farmers include the following material, one book /Training Manual each will be provided to each trainee, on cost basis:-

(i)	Animal health and Production Workers Trg.Manual (AHPWTM) Second Edition (2023)	This Trg.Manual provides chapter wise livestock production and animal health based on 22chapters /lectures (i) farming AHPKITs,drugs/medicines ration formulation ) duties with AHCSs and AHCSCH implementation in rural areas farms.
(ii)	Participatory Trg Manual for RD Workers –(2016)	This is a basic Trg . Manual where both men and women get taught with lectures (15 chapters ) on RD CBO.CO/ NGOs coordination with in and govt.Deptts ,community mobilization ,documentation ,interaction at actual working in the fields -villages –towns/UCs dealing with poor people.
(iii)	Artificial Insemination Training manual (AITM) (2014)	This is technical Trg Manual for AI insemination techniques and practical work with male as well as female animals, for breeding programs, involving laboratory work, semen

	collection details, preservations ,liquid nitrogen mediated sperm/semen-straws and shipment, plus all tech (Know-how) in this subject.
(iv) Sanaat-e- Murghbani (Urdu) Poultry Industry of Pakistan(2024) (2024)	This is an updated Training course book for farmers , SAs/VAs and PDAs providing comprehensive approach on the status of poultry production ,the farms namely ,(broilers/layers/breeds) and poultry meat, with egg-business etc.This write up also includes the birds other than poultry ,the farm management and essentials of farming is included .
(v) Broiler –Production(urdu ) (Ghost wale + murghe palna) 160 pages (2016)	This 160 pages Training Manual on Broiler Production (TMBopro) (Urdu) is a comprehensive approach for farmers /beginners/commercial producers, chapter wise (i)introduction , (ii)breeds involved (iii) DOchks procurement ,(iv) care and management, (v) feed and feeding (vi) Animal Health Care Services (AHCSs) and marketing, (vii) equipment and Vety.Medicine, Vaccines added AHCSCH ,at the farm and practical work included .
(vi) Layer Production –Urdu (Andon waly Murghian Palna ) 200 Pages ,(2016)	This 200 pages Training Manuals on Layer Production (TMLP) in urdu ,a taught and practical work, text ,involving chapter wise ,as coincides with Broiler Production but 05-6 months pains taking effort, before laying and 2 ½ years up to laying target procurement of eggs with detailed plan of work, is included .
(vii) Practical work	

## Conclusions

1. These updated informative taught material have been included in the proposed project on Livestock Economics and Business Management Approaches Project (LEBMAP) ,under consideration with MNFS and R ,GOP, Islamabad to be included in the coming PSDP, for 2023-24-2027-28.

2. The books and manuals are available (on cost basis ) which can be used in any Training Programs of Livestock Sector for which orders can be Placed through Pak.Jlsc ,email [drmhafeez1949@gmail.com](mailto:drmhafeez1949@gmail.com). .
3. All books and Training manuals are ISBN –Regd in National Libraries of Pakistan ,Isbd.
4. The Urdu Trg.Manuals are to be taught in at least 30 days ,Training program and quailified personnel required to lecture chapter wise ,components (Resource Persons –RPs) ,as per TORs, inbuilt in the Trg. Programs.
5. An updated list of books ,prepared by the author at No-1, Dr.M Hafeez ,FCS publications , Isbd, interested HoDs , Chairmen/ Chairpersons of different Deptts, can approach on the PJLSc , email [drmhafeez1949@gmail.com](mailto:drmhafeez1949@gmail.com) for purchase of training material.

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## RECENT PICTURE OF RETAIL MARKET PRICES OF ANIMAL , POULTRY AND PET BIRDS FEED INGREDIENTS IN RWP-ISBD MARKETS IN RECENT YEARS

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### ABSTRACT

The effort made by the researchers of LDF/FCS team, based on the recent picture of feed ingredients, feed/folder for large animals (cattle/ buffaloes ) and poultry, in the surveyed area of local markets Rawalpindi Islamabad (Rwp-Isbd), twin cities, for the period April –June – 2024 , When compared with previous ,values, it. Showed 10.5% increase (in animal feed/ concentrate (conc.) feed/wandas while the poultry feed (commercial feed ) showed 20% increase, in April – June -2024. Simultaneously , the feed ingredients namely wheat crushed , wheat straw ,wheat bran (choker) millat seed, green fodder and pet birds feed ingredients showed an average increase of 7.14%, 10.34% and 25-30% while in pet birds feed 12.68%,7.73 and 8.33% respectively .This scenario appeared in the wake of Eid ul Adha days of (June-2024) and the annual budget, discussing in the National Asssembly –June -2024. There of the article also includes Pet birds feed ingredients prevailing market rates and increase ,thereof the article end with conclusions and recommendations.

**Keywords:** Feed ingredients local market Retail prices Rwp-Isbd Pakistan

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### INTRODUCTION

Feed ingredients have always gained importance , as these play key role in the commercial as well as house hold (h/h) and or homemade feed, for keeping rural poultry birds and pet birds , at a small level , commonly known as house hold (h/h) level .

Since the commercial feed (i- concentrate feed , ii-wandas for animals and ,iii- poultry feed) are increasing day by day and the interested farmers (poultry birds keepers as well as birds keepers) .need to prepare their own feed at house hold level, always look for such ingredients (available in the markets with retailers).The information was collected in a gallop survey conducted as an assignment, entrusted to the team of researcher and forwarded in the form of a research article.The maize showed a decreasing trend in Sept-2024, when the fresh crop came in the market.

For comparison , the feed ingredients prices (retail prices) of the local markets of Rwp-Isbd twin cities, for the two previous years (already recorded and published in Pjlsc Volumes XIII and XIV of 2022 and 2023 and inferences drawn whether increased or decreased in percentile.

### MATERIAL AND METHOD

This article is prepared based on the following documented material ,the market rates of feed ingredients (the retailers ) in Rwp-Isbd twin cities:-

- I. Data collected on the feed ingredients, in the year 2022
- II. Data collected, on the feed ingredients in 2023
- III. Recently collected data ,in a gallop survey conducted in Eid ul Adha days of June-July 2024

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- IV. Simple mean values were worked out and percentile differences obtained and results presented in tabulated form.

## RESULTS AND DISCUSSION

### RESULTS

- As can be seen, the prevailing market rates (retail prices) of animal feed and fodder for the year (–upto April each year) of 2022-23, 2023-24, (March) and 2024 April –May were recorded flat rates, of most of the feed /feeder which showed hardly 7-8% increase as presented (table-No-01)

Table No.01 Comparative prevailing market retail prices of animal feed and fodder for the year 2022-23 and 2023-24, in Rwp-Isbd (up to April-2024)

	Feed item	2022-23 Rs /Kg	2023-24 (March)	2024 (April – May)	% increase
1.	Animal feed concentrated (wandas)	80-82	85-86	90-95	
2.	Poultry feed (various Mesh)	110/- 115/-	116 / -120/-	130/- 125/-	3.6%
3.	Poultry feed (layers)	120/- 125/-	140/- 150/-	160/- 170/-	6.66%
4.	Maize crushed (Dalya)	120/- 122/-	125/- 130/-	145/- 150/-	13%
5.	Wheat spraws (bhosa)	12/- 13/-	14/- 15/-	16/- 18/-	3%
6.	Wheat bran (wht.Brn)	70/- 75/-	80/- 85/-	87/- 90/-	7%
7.	Millat seed Bajra	115/- 120/-	125/- 130/-	135/- 140/-	3.5%
8.	Green fodder increase	10/- 11/-	12.50/- 12.50/-	13/- 13/-	8.3%

Source –retail market rates-info/livestock, LDF-Isbd

Table No.02 Percentile increase and decrease in the retail prices of feed ingredients (2022-23 and 2023-24) in Rwp-Isbd (upto April-2024)

	Feed item	2022	2023-24 (upto March)	2024(April-June)
1.	Animal Feed	2.5	6.25	10.58
2.	Poultry Feed (broiler)	4.16	4.54	5.20
3.	Poultry Feed (Layer)	4.20	6.66	7.50
4.	Wheat Crushed	3.85	4.20	7.14
5.	Wheat Straws	8.33	7.14	10.34
6.	Wheat bran (Chokar)	14.28	7.14	7.73
7.	Millat seed	4.34	7.14	7.73
8.	green fodder	8.00	8.09	8.33

Source – Retail market Price –info/livestock- LDF-Isbd.

While the feed ingredients showed 2.5%, 6.25 increase in 22-23 but in 2024 it rose to 10.58%(table no2).

- The poultry feed also showed 20.58 % in broilers while the layer feed showed (16.9%).The feed grains wheat crushed (7.14%) ,wheat straw (Bhosa 10-34%) ,Wheat bran( choker) showed an average (av.) increase by 12.68% and millat seed as 7.73% as was recorded .
- The green fodder however showed 20.00% (before this increase was 14.30% in 2023)

**Table No.03** Comparative retail market rates of animal feed and fodder for 2024 (June-July-2024) in Rwp-Isbd markets ,Eid ul Azha days as compared to 2022-23 days.

	Feed item	Wholesale2022 (Rs40kg/-)	Unchop23	Retail 24 (Rs40kg/-)	increase
A	Green fodder				
i	Green fodder (maize)	350/-	400/-	480/-	20.00%
B	Dry Fodder				
I	wheat straw	900/-1000/-	1100/-	1200/-	9.09%
	Bhoosa				
Ii	Green +wheat (straw(chopped)	950/-1050/-	1150/-	1240/-	7.83%
iii	Wheat straw(Bundles 25kgs)	750/-	780/-	800/-	2.56%

Source –prevailing market rates –lde info/livestock-Isbd

**Table No.04** Percentile Comparison of various feed ingredients in the local retail markets of Rwp-Isbd (June- 2024)

	Feed item	2024 (up to march)	2024 June-July	Increase%
i	Cattle	90-95	105	10.5%↑
ii	Poultry feed	125/-	130/-	4.0%↑
iii	Layer feed	130/-	135/-	3.8↑
iv	Maize crushed	145/-	155/-	6.89↑
v	Wheat crushed	130/-	140/-	13.0↑
vi	Wheat Bran(choker)	90/-	100/-	11.11↑

Source –prevailing market rates –LDF info/Livestock ,Isbd

**Table No.05** Prevailing retail rates of Pet-Birds feed ingredients -2024

	Feed items	@ Rs/Kg	Feed Ration Qty	Cost(Rs)
1	Maize seed	130/-	12	1560/-
2	Soyabean	400/-	04	1600/-
3	Moth	200/-	08	1600/-
4	Katha (mix)	180/-	10	1800/-
5	Linseed	300	03	900/-
6	Taramera seed (rap seed)	270/-	02	540/-
7	Jai (Jawainder)	200/-	08	1600/-
8	Wheat	130/-	15	1950/-
9	Rice with bran (moonje)	150/-	16	2400/-
10	Wheat crushed Dalya	140/-	07	480/-
11	Barley	140/-	10	1420/-
12	Gram (smallest size)	220/-	05	1100/-
	<b>Total (cost Per kg)</b>		<b>100</b>	<b>174.50</b>

NB.One kg feed is sufficient for 10-12 pet birds for one week with fresh water availability

## CONCLUSIONS

The data collected and analysed simply compels to frame the following few visible conclusions :

1. Cattle/buff feed ingredients increased by 10-11% in July-2024,as compared to 2023.
2. Poultry feed and feed ingredients were recorded as single digit increase in the year ,in July-2024, as compared to May-2024.
3. The pet birds feed ingredients were although increasingly reported and the feed sold was @Rs200/-kgs but when own prepared with at least similar ratio, The cost per kg averaged to Rs174.50/-.

4. The pet birds feed also includes sunflower seeds (limited Qty) but being a costly item , can be replaced with low fat seed (such as wheat bran and /or ani-seed etc).
5. It can also be concluded that grain crops be purchased in particular season (wheat in May) and Maize in Sept, each year, as beneficial to pet bird lovers.

## **RECOMMENDATIONS**

Based on the prevailing and previous scenario , though there appear visible increase in feed/fodder ingredients , farmers are recommended to go for whole sale rates instead of retail rates .So that they remain economical to feed their animals ,poultry or pet-birds.

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## FDI- ORIENTED LIVETOCK PRODUCTION FARM COMPLEX -(LPFC) PROJECT I GROWING YCCs TO GROWN BULLS 2024-2030

Muhammad Hafeez<sup>1</sup>

### ABSTRACT

This article in a feasibility based Foreign Direct Investment (FDI) oriented Livestock Production Farm Complex (LPFC) proposal project, known as the Farm Complex, amounting to PKRs million, in A, B and C categories as 287.70, 505 and 824.15 towards growing Young Cattle Calves (YCCs) to Mature Bulls (Mtr.Bls) A=1000, B=2000 and C=3000, at the farm complex in the central and/or Southern Punjab Province, Pakistan. The proposal investigates the investment on (i) cost of YCCs, 44-88 and 122 million PKRs, (ii) cost of land A=50 kanals (knls), B=100 knls and C=200 knls, amounting to PKRs-123, 242 and 450 million respectively (including 10 knls =10 animal sheds, 20 knls=20 animal sheds and 30 knls =30 animal sheds, with double the space as Open Yard (Bpn.Yrd), secured with Barbed wire (Brbd/wire) and main gate etc. The construction work includes 10, 20 and 30 sheds @PKRs 164, 326 and 490 million @Rs300 sq/ft (economical/sheds). Rest of the infrastructure includes (a) office buildings, (b) Gawala's Quarters (Gwl/Qtrs), (c) stores, (d) wash rooms (e) kitchen and dining, (f) meeting rooms, (g) logistics, (h) veterinary clinics and, (i) a mosque. The essential equipment required includes (i) shed equipment, (ii) veterinary clinic things (AHP- kit) (iii) tractor trolley, (iv) office vehicles and (v) miscellaneous expenditure (utility bills, SNGPL expenditures and CCTV cameras and computers with office equipment amounting to 8.00, 10.00 and 16 million PKRs. The operational expenditure including (i) salary package, 16.20, 28.70, and 39.16 millions (ii) feed and fodder 126.00, 252.68 and 378.00 millions PKRs with Animal Health Care Services (AHCS) (iii) AHCS =0.32, 0.46 and 0.60 as well as mess arrangement as additional incentive to officers and staff (40-50 people) 0.80, 1.06 and 1.15 for A-, B- and C category of farm complex with utility bills+(Pol etc, 0.144, 0.160 and 0.180 respectively. The total expenditure estimated indicates. The cost of calves (YCCs) now grown bulls (Grn.Bls) Farm Gate Price (FGP) as PKRs 0.338, 0.208 and 0.244 respectively with Safe Sale Margin (SSM) of Rs 0.03 (thirty Thousand PKRs) amounting to net profit of PKRs 28.5, 58.50 and 88.50 million PKRs, in first batch of growing A-1000, B-2000 and C-3000 YCCs to mature bulls, to be sold for sacrificial purpose. Similar batch when produced with the available infrastructure (building of sheds, gawalas quarters, stores and clinic) which have good prospects of business for investors. If not sold Direct there to recent approach with mediocre investment on slaughter house, meat processing, hides and skins bone crushing as well as, Casing and Stomach processing units and exporting 60% of the products while 40% local consumption.

**Keywords :** production of YCCs, -growing upto maturity, FDI-Livestock Production, sacrificial meat production, by-production, Pakistan

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### INTRODUCTION

Livestock being an integral part of an agricultural country like Pakistan where (8-eight thousand cattle and buffaloes farmers (a) are registered and working to produce cattle and buffaloes for our country towards milk and meat as main products of our food requirements of animal origin (the proteins) and 14 (fourteen thousand) sheep/ goat farmers (b) registered and producing mutton as registered progressive farmers with Federal Livestock and Dairy Development Board (FLDDB), Ministry of National Food Securities and Research (MNFS and R), Govt. of Pakistan (GoP) Islamabad.

As understood, the estimated cattle and buffaloes population of Pakistan as per 2022-23 data

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showed that there were 57.5 million cattle and buffaloes 46.3 millions respectively (PSER-2023-24) whereas both produced .80 million tons of meat (beef and mutton ) and 70.07 million tons of milk ( as per the reported year ) .Cattle calves purchased from local markets ( out of 43 Distt. and Tehsil animal markets) and rearing upto 2 and half years (30 months ) , to the age of adult hood , for sacrificial purpose in three categories A=10 calves, B=20 calves and C=50 calves was documented by Mohsin Kiyani et al (2023)

Some of the progressive farmers of livestock and some investors specially from other countries specifically different brotherly muslim countries are showing interest in Livestock such as Kuwait and possibly UAE and KSA , media reports – April/May-(2024) being the potential importers of milk , meat (both beef and mutton ) and poultry including eggs and other food items. This effort in hand , is developed on feasibility –based estimates towards production of young cattle calves (YCCs) purchased in the early age of 5-6 months age and growing these for 2½ (two and half years) towards adult hood , the mature bulls , for sacrificial purposes in three categories A=1000, B—2000 and C=3000 Nos with total investment as Foreign Direct Investment (FDI) in Rural Punjab ,Pakistan .with good prospects of margins in meat production (beef) , for local use (in Pakistan 60 % ) and export (40%) ,as per plan of work, (proposed).

In this feasibility based article, both (a) land for livestock of the Farm Complex (LFC) and (b) construction infrastructure of sheds /other buildings with (c) essential equipments and personnel , as per prevailing cost, is included .The cost of YCCs) aged 5-6 months, are purchased and fattened/grown for 2½ years to the maturity age of 03 (three) years and sold directly for sacrificial purposes in local markets.

**Phase-I** ,Direct sale of mature calves/Bulls one option in this project proposed, is direct sale of these mature c/calves (YCCs) , now known as mature bulls (Mtr.Bls) as Dondas (two teeth ) , fit for sacrificial purpose , even with a good margin , in the local Eid ul Adha Market or Exported.

**Phase-II , Slaughtering and sale of meat (beef) ,** Plus by-products , the second option ,in this proposed investment oriented approach is slaughtering the young bulls and meat should be sold in the market (60%) as well as 40% exported and/or 60% be exported and 40% be used locally whatever, with good margins.

In the second phase five additional processing units will also be operated :-

- (a) An abattoir, the Slaughter House (SH) (b)Hides and Skins Processing Units (HSPU)
- (c )Bones Crushing Unit (BCU) (d)Guts and stomach Processing Units (GSPU)
- (e ) Head and trotters Cooking (HTCK )

(f) As **abbatior** ( The Slaughter house of Livestock Farm Complex (LFC-SH):

An Abatior the Livestock Farm Complex ,Slaughter House (LFCSH) is proposed to be constructed , a state of the art , hardly in a 5 marlas (1250 Sq.ft) covered, with similar open (1250 sq.ft) totalling 50x50 (2500 Sq.ft) specifically with equipment and chilling condition , reasonably supported with trained batchers (Trd.Bchers) and slaughtering capacity of 50-80 mature bulls (produced from the YCCs of the LFC for meat production (beaf of course) with cold chain delivery ,scientifically packing with an estimated cost of 12.00→13.00 million PKRs

(a) **Hides and skins** (preservation /processing Unit) of the farm completion. (LFC/HSPU)

The hides /skin preearvation/processing unit of the farm complex will be established close to the abattoir /SH, so that hides are preserved a fresh (without being spoiled) , the disposal /sale will be 2-prong approach.

- (i) Only preserved and sold to processing Units of the country (Distt;Kasur)
- (ii) The preserved hides skins will be semi-processed for onwards sale to tanneries of the country.The LFC H/S PPU is also proposed to be established on 10 marlas (2500 Sq.ft) area covered and 05 marlas open , costing an amount of PKRs=10-12 millions.

(b) **Bone crushing unit** (BCULFC): efforts have been made to get the bones separated from beef of young bulls ,(just slaughtered) and sent to (BCU-LFC) with an estimate of crushing 2000-3000kg per slaughtering time of 200-300 young bulls on at least one kanal area ,half covered , half open ,with crushing machine and mesh arrangement. Costing at least 20.00-25.00 millions PKRs.

(c) **Guts, Casing and Stomach Processing Unit** (LFC-GCSPU) .This is proposed to cloan stomachs, intestines and other organs ,not eaten , other wise processed and dried ,for local use or exported built on 05 marlas costing 6-8 millions PKRs.

(d) **Head and Trotters:** Cooking Centre (LFC/TRCC) .This arrangement is proposed to prepare this morning dish for breakfast 50% utilized in the farm complex Mess and Dining (LFCMD ) while 50% will be sold in the market .This is going to be a commercial activity and good earning for the LFC costing hardly 1.00-1.50 million PKRs with good returns , very close to processing units.

## MATERIAL AND METHODS

This farm complex is designed, for investors ,as FDI and the working is based on the following criteria:

1. Cost/rates obtained from local markets
2. Young cattle calves (ycc) purchased at a younger age of 05-06 months.
3. Three categories proposed as A-1000 , B-2000 ,C-3000 Nos.

4. The expenditures on cost of animals, land/ kanals(-k) construction of sheds ,offices and other buildings (stores, gawala- quarters vety: clinic, logistics and a mess /dining arrangement with a mosque ,is worked out .
5. Personnel include Management ,Technical officers ,support –tech .Assistants ,security persons and logistics (drivers) and gawals/butchers etc, as per requirements.
6. The livestock farm complex initial cost of land construction and production /Processing Units, is based on prevailing market rates 2023-24 (a) Abbarator , (b) Hides/skins preservation/ processing units, (c) Bones crushing unit , (d ) Guts/stomach and intestines processing unit , (e) Head and trotters (four feet) cooking centre with (f) disposal pit for organic fertilizer/ Farm Yard Manure (FYM) included at the farm.
7. Research and development included in the administration (one LPO and one VOs R and D) Research Associates ,hired the data collected will be analysed for future improvement of such products and thus R and D work will continue to benefit other investors for improvements.

## RESULTS AND DISCUSSIONS

- (a) An initial cost of Young cattle calves (yccs) (i) of A, B and C categories with transportation worked out in rural Punjab ,was 50.00, 100.00 and 150.00 million PKRs while cost of land (ii) (averaged) , was estimated to PKRs 150.00, 300.00 and 450.00 million, corresponding to 20k (Kanals) , 40 k and 60 k ,respectively as presented in table No.01.
- (b) The construction work of animal sheds offices stores ,gawalas quarters ,logistics FYM pits ,kitchen mess/dining etc estimated to PKRs 190.60 ,300.00 and 430 million.(table No.01).
- (c) The shed and farm equipment including ,Vety clinic, logistics ,Agri-implements and miscellaneous expenditure estimates came to PKRs 167.40, 323.800 and 500.00 millions totalling the gross investment expenditure to PKRs= 1000.00;2000.00 and 3000.00 million respectively for A ,B and C categories as initial investment, (table No.01)

### **(a) The operational expenditure incurring on the following items namely:**

- (i) Salary package and free mess/dining (as additional incentives ) to 40-50 personnel of the farm complex for six months first year while in second and third year, each was estimated to PKRs 3.60,6.0 and 6.8 (first six months) and 11.60 ,15.60, and 23.00 million for second year (12 months) and again 11.60,15.60 and 2300 million next 12 months ( the third year) of the age of yccs (now young bulls) as detailed in table No.02.

### (b ) The feed and fodder arrangement (FFA)

The feed and fodder arrangement (FFA) involving (i) green fodder ,(ii) dry-hay, (iii) and concentrate feed ,as per body weight (B.Wt) came out, for first six months (first year). and 12 month each, for second and third year ,to the tune of PKRs=63.00 ,126.00 and 190 millions for A,B and C categories PKRs ,126.00,252.00 and 370.00 millions , respectively as presented in table No.03.

(a) The Animal Health Caro Services (AHCSs) .This animal health approach comprises provision of essential vaccines and vaccinations of 4 (four) endemic diseases , the Veterinary (Vety) medicine essential with disposables, for categories A,B and C worked out was PKRs=0.32,0.46 and 0.60 million, as displayed in table No-04.

### (b) The Free Mess Arrangement /Dining)

The free mess arrangement of officers and staff of LFC , being an incentive to all Farm personnel (officers and staff) numbering 45-50 ,providing (i) Breakfast, (ii) lunch and dining with an expenditure of PKRs =0.71,2.03, and 3.15 for Ist year (06 months) and 12 months each for 2<sup>nd</sup> and 3<sup>rd</sup> years each ,as available in table No.05.

**Table No.01** FDI oriented yccs production for sacrificial purpose: growing 2½ years (2024-2027)

	Cost of YCCs and sheds only	A/1000	B/2000	C/3000
i	Cost of yccs 5-6 months old @ Rs45000/- each	45.00	90.00	135.00
ii	Cost of transportation to sheds@Rs 3000/-	03.00	06.00	09.00
iii	construction of sheds and			
iv	other buildings 3000/-sq.ft ,20k ,40k-60k	163.00	326.00	490.00
v	Cost of land 20k-40k-60k	50.00	100.00	150.00
	a. @275k			
	b. On lease basis 0.125/k/2 years	2.500	5.0	7.50
vi	Open yard cost 40k-80k- 120k (on lease basis)	3.50	5.00	15.00
	<b>Sub total</b>			
	(a) Investment total cost basis	347.5	691.00	1035.00
	(b) Leased basis			
		264.6	527.00	656.50
B	Construction and additional infrastructure			
vi	Officers ,gawala ,quarters ,stores ,vety clinic ,FYM pits , washrooms ,logistics ,mess/dining	54.00	60.00	120.00
	<b>Sub total</b>	<b>06.00</b>	<b>12.00</b>	<b>18.00</b>
C.	Equipments /sheds			
	Transports /vehicles,leveries ,uniform	4.00	8.00	10.00
	Agri-implements clinic equipment	2.50	3.70	4.00
	<b>Sub total</b>	<b>12.50</b>	<b>23.70</b>	<b>32.00</b>
	<b>a. Investment(A+B+C)</b>	<b>414.00</b>	<b>774.70</b>	<b>1187.00</b>
	<b>b. On leased base</b>	<b>340.00</b>	<b>6300.00</b>	<b>9700</b>
	<b>c. Cost of yccs</b>	<b>331.1</b>	<b>610.00</b>	<b>808.00</b>

Table No.02 Operational cost on A/1000, B/2000 and C/3000 yccs growing under FDI oriented Project =2024-25, 25-26 and 2026-27

Sr.no A	Contents /item wise	A/1000 180 days	B/2000 365 days	C/3000 In 365 days
(i)	Salary package with free mess /dining (10)-(20)-(30) Gawalas @ Rs20,000/-per month	1.2	2.4	3.6
(ii)	Manager –LFC (1) @Rs40000/-pm(1+2)	0.24	8.840	0.48
(iii)	Vety :officers /LPO@Rs 10,000 (01+01+02)	0.24	0.48	0.48
(iv)	Vety :Asstts (01+01+02) @Rs 25000/- per month	0.15	0.30	0.45
(v)	Admin officers (1) @Rs 30,000/- per month	0.18	0.36	0.36
(vi)	Accountant @Rs 25000/- per month	0.18	0.36	0.36
(vii)	Office Asstts (2) @Rs 25000/- per month	0.30	0.60	0.60
(viii)	NQ-(02) @Rs 20,000/- per month	0.24	0.48	0.48
(ix)	Dining (03) @Rs 20,000/- per month	0.36	0.72	0.72
(x)	SecurityPersons (03) @Rs 25000/- per month	0.36	0.72	0.72
	<b>Subtotal</b>	<b>3.45</b>	<b>6.84</b>	<b>6.84</b>

Table No.03 Feed and fodder arrangements for YCCs in A,B and C categories

B	Feed and fodder	Category A	Category B	Category C
(i)	Green fodder Rs200/per day	36.0	72.00	108.00
(ii)	Dry Hays @Rs 150/- per day	27.00	54.00	81.00
(iii)	Conc; feed (home made) @Rs100/- day	18.00	36.00	54.00
	<b>Sub.total</b>	<b>81.00</b>	<b>162.00</b>	<b>243.00</b>

Table No.04 Cost of Miscellaneous Expenditures on YCCs ,growing at LFc, milliom PKRs

C	Miscellaneous	A	B	C
(i)	AHC Services	0.16	0.23	0.30
(ii)	Mess/dinning	0.30	0.45	0.60
(iii)	Utility /bills	0.15	0.16	0.18
(iv)	Unforeseen	0.50	0.70	0.90
	<b>Subtotal</b>	<b>1.20</b>	<b>1.54</b>	<b>1.98</b>
	<b>Grand Total (A+B+C)</b>	<b>85.65</b>	<b>168.25</b>	<b>503.00</b>

Table No.05 Cost of Animal Health Care Services with Vety: Medicines and Vaccinations for A=100,B=2000 and C=3000 c/calves for 2½ years ,million PKRs

	A	B	C
(a) AHCS	Available	Available	Available
(b) Vety .Medicine	0.040	0.080	0.120
(c) Vety; vaccines (i) HSV,BQV,ASV,FMDV	0.060	0.120	0.180
(d) Vety clinical kits (sprays+AAHPkit)	0.180	0.19	0.20
(e) Disposables	0.020	0.030	0.040
Miscellaneous	0.020	0.030	0.040
Unforeseen	0.40	0.50	0.80
<b>Subtotal</b>	<b>0.72</b>	<b>0.95</b>	<b>1.38</b>

Table No.06 Free Messing arrangements for Farm Personnel (million PKRs)

		A/1000	B/2000	C/3000
(i)	Personnel Nos	30	40.5	50
(ii)	Messing arrangements,utencils	0.30	0.50	0.70
(iii)	Monthly menu grocery	0.120	0.24	0.36
(iv)	Cooks (01) @Rs 1500/- six month per year	0.20	0.30	0.45
(v)	Fuel /SNGPLor Gas cylinder	0.020	0.040	0.060
(vi)	Milk/meat/grocery/eggs, Vegetables etc	0.18	0.30	0.40
	<b>Subtotal</b>	<b>0.65</b>	<b>1.03</b>	<b>1.42</b>

Table No.07 Cumulative Expenditure on Land, shed building , personnel salaries ,shed equipments ,transport and AHCSs

		A/1000	B/2000	C/3000
(i)	Land	220.50	341.70	624.80
(ii)	Shed building	3.15	4.77	6.40
(iii)	Personnel salaries	63.00	126.00	190.00
(iv)	Shed equipment and transport	0.32	0.46	0.60
(v)	AHCS	0.71	2.03	3.15
	<b>Subtotal</b>	<b>287.70</b>	<b>505.00</b>	<b>824.15</b>

Table No-08 Initial cost of C/Calves (Now –One year age) after 07 months rearing , in million PKRs

A	After five month rearing	A/1000	B/2000	C/3000
i.	Very initial cost	45.00 million	90.00 million	135.00 million
ii.	Av.expenditure	287.00	505.00	824.00
iii.	Total price of grown bulls	332.00	595.00	824.00
iv	Cost of each (After One Year's Rearing)	0.330	0.298	959.00
1	Feed and fodder	126.00	252.00	378.00
2.	AHCS	0.32	0.46	0.60
3.	Messing	2.03	2.50	3.15
4.	Utility bills +Pol, miscellaneous	0.144	0.160	0.180
		14.50	284.00	421.10
	<b>Each</b>	<b>0.432</b>	<b>0.395</b>	<b>0.460</b>

Table no .09 Operational cost of calves (now adults) 2<sup>nd</sup> years without land and shed Building etc, in million PKRs

A	Total	1000	2000	3000
I	Total earlier	220.50	371.70	624.80
Ii	Less cost of land	60.00	120.00	200
Iii	Less shed buildings etc	21.80	43.60	65.40
Iv	(quarters+offices +stores)	54.40	74.40	108.80
B	Total infrastructure	136.2	238.00	374.20
	Operational cost (A) –(B) –(C)	83.80	133.00	250.6
	operational cost of each ycc	0.0838	0.0665	0.0835
	<b>Cost of each ycc</b>	<b>0.220</b>	<b>0.186</b>	<b>0.208</b>
		<b>220.084</b>	<b>371.77</b>	<b>624.88</b>

Table No.10.Operational cost of adult calves/bulls , in 3<sup>rd</sup> year's age without land sheds , sheds ,offices , stores and major equipment (2026)

A		Earlier total expenditure Or cost of each( second year)	83.80	133.00	250
			0.084	0.087	0.083
I	Salaries		16.20	28.68	39.16
Ii	Feed +fodder		126.00	252.00	378.00
Iii	AHCS		0.32	0.46	0.60
Iv	Messaging		0.80	0.06	0.150
V	Utility bills		0.144	0.160	0.180
			143.50	283.40	418.00
<b>B</b>		<b>Total operational cost (B+A)</b>	<b>388.50</b>	<b>416.50</b>	<b>668.1</b>
		<b>Total cost of each (FGP)</b>	<b>0.338</b>	<b>0.208</b>	<b>0.223</b>

Table No.11Av.Body weight of YCCs grown for 2<sup>1/2</sup> years (mature Bulls)

Age /months		Initial B.Wt	After one year	Ater teo years
I	5-6	30-40	-	-
Ii	After one year (6 months grown)	60+70	80 kgs	120 kgs
Iii	Live (b.wt)	Meat	Bones	Skins+other organs 20kgs , 8kgs liver etc
Iv	200-210 kgs Head and trotters (four feet)	45 kgs 25	46kgs	Fats= 04
V	Blood etc	02-03 kg		

Table No.12 Expenditure Upto 2<sup>nd</sup> year for YCCs growing at LFC

I	One year + 6 months	A	B	C
		0.388.5	0.208	0.223
3 <sup>rd</sup> year Expenditure				
i	Feed and fodder (12 monhts )	126.0	252.0	378.0
ii	Salaries	16.20	26.70	39.16
iii	AHCs	0.32	0.46	0.60
iv	Messing	0.85	0.85	1.40
v	Utility bills	0.144	0.164	0.180
<b>II</b>	<b>Sub.total</b>	<b>143.5</b>	<b>282.2</b>	<b>419.34</b>
	Total expenditure I+II	532.0	698.6	1087.34
	Cost of each	0.532000	0.349300	0.362455
	Sale margin @Rs0.03	0.562,000	0.379300	0.392,455
	Net profit million pkrs	28.5	58.50	88.50

Table No.13 Brief of investment in YCCs of production to G/bulls for 2<sup>1/2</sup> years

I	Investment	2024-25	2025-26	2026-27
A	Yccs +transportation	4400	88.00	132.00
B	Land 50 k, 20-30-50	15.00	20.00	030.00
C	Construction of sheds open 10 k	21.00	45.00	64.00
D	Office ,quarter ,stores	86.0	88.00	96.00
E	Equipment ,miscellaneous and utility bills	40.00	50.00	60.00
<b>Total</b>		<b>92.00</b>	<b>167.00</b>	<b>241.00</b>
<b>II</b>	<b>Operational cost</b>			
A	Salaries	2.13	4.26	4.26
B	Messing setup	1.44	2.88	4.28
C	Food/fodder	72.00	144.00	216.00
<b>III</b>	<b>Miscellaneous</b>	<b>0.45</b>	<b>0.45</b>	<b>0.45</b>
A	AHCSs	0.32	0.46	0.46
B	Vety;Med and vaccines	0.60	0.12	0.12
C	Utility bills	0.15	0.30	0.40
<b>Subtotal</b>		<b>0.88</b>	<b>1.33</b>	<b>1.33</b>
<b>Total I +II+III</b>		<b>563.00</b>	<b>638.00</b>	<b>638.00</b>
<b>Cost of each</b>		<b>0.565</b>	<b>0.641</b>	<b>0.641</b>

Table No.14 Second Batch of A/100,B/200 and C/300 ycc(-G/bulls)  
2029-30 Summary cost of second batch of yccs ( G-bulls).

A	Ycc/G- bulls	A/1000	B/2000	C/3000
1	Land available	nil	nil	Nil
2	Construction/sheds	nil	nil	nil
3	Office and other buildings	nil	nil	Nil
4	Cost of yccs (with transportation)	50.00	100.00	150.00
5	Open yard/wiring /gate	nil	nil	Nil
6	Equipment shed (renewal)	05.00	10.00	15.00
7	Miscellaneous	1.00	2.00	3.00
8	vety;clinic equipment	nil	nil	Nil
	<b>Subtotal</b>	<b>56.00</b>	<b>11.20</b>	<b>16.8</b>
<b>B</b>	<b>Operational cost</b>			
a	Salaries	16.00	32.00	32.00
b	Feed /fodder	72.00	144.00	288.00
c.	Medicinesaccines and AHCs	0.30	0.40	0.60
d	Messing /dining	0.75	1.50	1.50
e	Utility bills	0.120	0.040	0.040
	<b>Subtotal</b>	<b>247.15</b>	<b>238.14</b>	<b>413.2</b>
	<b>Total expenditure</b>	<b>303.15</b>	<b>296.00</b>	<b>581.2</b>
	Cost of each @0.06 each	0.343	0.20	0.289
	<b>Margin I</b>			
	<b>Margin II</b>	<b>0.343</b>	<b>0.20</b>	<b>0.298</b>
	<b>Margin III</b>	<b>0.295</b>	<b>0.2300</b>	<b>0.35</b>
	<b>Gross income I,II,III</b>	<b>160.00</b>	<b>80.00</b>	<b>80.00</b>
<b>BREAK EVEN (after second batch)</b>				

Third batch production of yccs to grown bulls for sacrificial purpose  
2030-31, 2031-32, 2032-33

Table No.15 Expenditure incurred on purchase of ycc and operational cost (2030-31) PKRs million

A	Investment on yccs	A/1000	B/1000	C/1000
1.	Cost of yccs @50,000/-	50.00	100.00	150.00
2.	Cost of transportation (market to home)	5.00	10.00	15.00
3.	Cost of land (available)	50k	100k	260k
4.	Construction work on sheds 10/k, 20/k, 30/k	164	326.0	490.00
5.	Offices ,store ,gawala,	81.00	85.00	100.00
6.	Open yard repair etc	3.00	4.00	8.00
7.	Vety clinic sheds,labor	2.00	3.00	5.00
	<b>Subtotal</b>	<b>60.00</b>	<b>117.00</b>	<b>178.0</b>
<b>B</b>	<b>Operational cost</b>			
i	Salary package	16.00	30.00	40.00
ii	Feed /fodder	126.00	252.00	378.00
iii	Messing etc	2.5	2.50	3.50
iv	Vety medicines + vaccines	0.35	0.46	0.56
v	Miscellaneous ,bills and unforeseen	0.40	0.60	0.80
	<b>Subtotal</b>	<b>145.22</b>	<b>285.50</b>	<b>414.80</b>
	<b>Total (A+B)</b>	<b>205.22</b>	<b>402.50</b>	<b>592.80</b>
	<b>Cost of each grown bull</b>	<b>0.20522</b>	<b>0.20125</b>	<b>0.1981</b>
	<b>Merging</b>	<b>0.0800</b>	<b>0.800</b>	<b>0.800</b>
	<b>FGD</b>	<b>0.285220</b>	<b>0.281250</b>	<b>0.288,00</b>
	<b>Income</b>	<b>95.00</b>	<b>180.00</b>	<b>270.00</b>

**NB.** The cost might vary in areas, in provinces ,AJK/NAs/GB, adjustments can be made as per prevailing market rates

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## FDI ORIENTED LIVESTOCK PRODUCTION- FARM COMPLEX (LPFC) PROJECT-II GROWING YCCs FOR 2½ YEARS FOR SACRIFICIAL PURPOSES (2024-27)

Salman Hafeez<sup>1</sup> and Muhammad Hafeez<sup>2</sup>

### ABSTRACT

This feasibility based investment approach article towards producing mature bulls growing/rearing young cattle calves (yccs) for 2½ years (of three years of age), for sacrificial purpose. The investors and beginner farmers who do not have such lands with infrastructure of shed buildings including gawala-quarters, Vety; clinic, the administration offices, mess dining stores, FYM pits etc. need to invest for one time for categories of A=100, B=200 and C=300 yccs, on (i) land of 08 Acres (k) 20-30 k, costing PKRs 16.00, 32.00 and 50.00 million in Southern Punjab with economical construction of sheds and other infrastructure to the estimated tune of PKRs 86.00, 163.60 and 242 for the three categories mentioned above. The potential progressive Livestock farmers (PPLF) who already possess sufficient land and infrastructure (with feed/fodder and drinking water facilities), can invest for operational cost amounting to PKRs 7.3, 14.40 and 22.00 millions on (i) YCCs (4.00 millions) (ii) shed essential requirements (0.1, 0.2 and 0.3), (iii) personnel (0.75, 2.24, 2.51 millions), with an additional incentive of free mess/dining to personnel of 05-06-07 Nos and National Liabilities (Utility bills, POL), Vety; medicines and vaccines as well as Animal Health Care Services (AHCSs). The total investment (without purchasing New piece of land and construction of sheds and other infrastructure) estimated cost appeared to PKRs 19.30, 38.60; and 58.00 millions (inclusive cost of YCCs (now mature bulls) appeared as PKRs 03.00, 1.58, and 20.7 in A, B and C categories. The operational production cost after six months growing when added, the FGP of the YCCs came to PKRs 0.086 while after feeding and maintenance, after next one year (12 months) now two years of age, appeared as PKRs 0.163 million while feeding and maintenance, after next one year (now 3 years of age) appeared to PKRs 0.242 million in A, B and C categories. This provides us an average (av) margin of PKRs =0.040 millions, in the first batch. The second batch of growing such YCCs on the same premises (where land, sheds, other infrastructure etc) remain avail, the operational cost of feeding and maintenance, the FGP of A, B and C categories appear as PKRs 0.133, 0.14 and 0.160 which can give a safe margin off PKRs 0.05 million, each; a good return to the investment. Lastly the write up indicates an open business venue for the existing livestock Potential Progressive Farmers (LPPFs) as well as new investors and/or Foreign Director investment (FDI) persons in Pakistan.

**Keywords :** YCCs growing, investment, FDI, Producing, Mature bulls, Sacrificial purpose -Pakistan

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### INTRODUCTION

As understood livestock and its allied industries of Pakistan are playing key role in the production of animal proteins, for our people in terms of meat (beef, mutton, poultry meat and eggs) on sustainable basis, for the last many decades but there appeared some constraints in increased production of (i) Live animals (cattle, calves, sheep/goats and poultry) (ii) Processing livestock products (milk, meat and eggs) on larger scale. These constraints include (i) financial issues and (ii) scarcity of trained manpower, in livestock economics and Business management (Muhammad Hafeez (2023-24)). Although the third constraint (iii) the support prices for livestock

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and products which has somehow being covered with the open economy based principle of demand and supply, together with the purchasing power of consumers/the end users.

The investment in livestock sector ,is increasing but slowly paced .with (i) farmers individual effort , (ii) with loans and credits from banks , (iii) Financial institution (FI) with 2.9 to 3.1% annually (PESR)-2023-24)but now a boost can only be achieved by Foreign Direct Investment (FDI) in producing live animals, in the first place (for milk , the most and by - products ) naturally export oriented, where 60% must be made available for our own people at home and 40%be limited to experts only.

As very recently, some of the brotherly Muslim countries have shown interest in livestock sector eg Kuwait ,Bahrain , UAE and KSA ,while other friendly countries are already involved in Pakistani livestock products and by-products including EU member countries .Central Asian Republics ,Thailand , Japan and other countries . Thus increased livestock production has given an impetus and encouragement for rearing live animals (i) Young Cattle Calves (YCCs) ,sheep/goat for sacrificial purposes ,Specially to produce large animals and sheep /goat to be sent to the Kingdom of Saudi Arabia ( KSA)at the time of Hajj-Pilgrimage, each year.

For this purpose, an effort (feasibility based approach) was made by Mohsin Kiyani et al (2023) but on a limited number of YCCs on the A,B and C categories to the number of 10,20 and 50 animals rearing for 2½ years, with good margins and profitable returns. The “Prime Minister’s Initiative for calf rearing and fattening calves project” was also completed (2019-2023), were in PKRs 6000/-per calf (once) was given as an incentive towards increased meat (beef) production.

This approach in hand is an estimated feasibility based write up, in growing YCCs (of 5-6 months of age) to mature bulls (Mtr.Bls) , for a duration 2½ years , upto the age of three years ready for meat (beaf) production and/or sacrificial purpose.

This effort encompasses the purchase of YCCs at a very young age (of 5-6 months) to be grown /reared al places of lower /Central Punjab Districts (Distts) or Southern Punjab area , in A-100, B-200, and C-300 categories to be fed and maintained up to the age of three years, until sold in the market , with FDI in Pakistan involving the following methodology .

## **MATERIAL AND METHOD**

For the preparation of this write up , the following documents were excessively consulted and prevailing market rates of the private sector were obtained :

- i. Livestock and its allied Industries of Pakistan ,ISBN-Regd. FCS-Publication, Islamabad (2023).
- ii. Livestock Economics and Business Management in Pakistan –FCS Publication – Islamabad (2023).

- iii. Market Prices for YCCs (5-6 months ) in central and Southern Punjab 2023-24.
- iv. Market rates for agricultural and other lands in Southern Punjab (2023-24)
- v. Construction cost of economical sheds( -2024) by the contractors/biuldters etc
- vi. Livestock Population, Production (products, by-products ) updates(2023-24)
- vii. Import and export data of AQ Deptt. -2022-23, Karachi Gop.
- viii. Pak Economic Survey Reports (PESRs) 2022-23and 2023-24.  
Agriculture and Livestock chapters 2023-24
- ix. Pakistan Bureau of Statistics (PBS) 2022-23 and 2023-24

## RESULTS AND DISCUSSION

### a. Results

- (i) Those interested persons and /or beginners farmers who do not possess their own land and shed buildings including other infrastructure (offices ,vety.clinic ,FYM-pits stores mess/ kitchen/dining ) open yard (barbed –wired) , need to invest for at least 08-kanals /one acre/ 16-k and 30 k lands expenditure categories of A-100, B-200,C-300 calves, with a cost of 16.00, 32.00 and 50 PKRs millions together with cost of YCCs to the tune of 4.00;8.00 an 12.00 million .The personnel salary package will be around 0.75,2.24 and 2.51 for three categories hence the total incurred damage will be 86.00, 163.22 and 242.50 million as displayed in table No-01.
- (ii) Those livestock progressive potential farmers (LPPFs) who already own lans (sufficient) ,infrastructure (of shed ) buildings ,offices gawals ,stores ,FYM-pits ,mess dining and open yard need only the .The operational cost of PKRs 15.30, 30.60 and 46.00 million for A,B and C categories with added amount of PKRs 4.00 .8.00, and 12.00 million for YCCs , totalling to 19.00,38.00 annd 58.00 million when the cost of each Ycc (now grown bulls- Grm.Bls) worked outcomes comes to Rs0.190;0.190 and 0.195 million , as displayed in table No-02
- (iii) It can be easily understood that if Rs400/-million PKRs be regarded as net margin at atleast the cost of YCCs can be obtained .While half of the operational cost can easily be obtained when a least Rs 8.00 is the margin of 3 years old YCCs (now grown bulls) , prevailing market rates, in Eid-ul-Azha days.the growing of YCCs to grown bulls is quite feasible (2023-24 market rates).

Table No-01 estimated investment expenditure of growing YCCs to mature bulls (up to three years of age) of LFC, (2020-2026).

	YCCs #	A=100	B=200	C=300
	<b>Infrastructure</b>			
1.	Land	<b>08 K</b>	<b>16k</b>	<b>30k</b>
	(05K-20K @ Rs 2.8/k	16.00	32.00	50.00
2.	Animal sheds	02k	04k	06k
	Covered (2k) @ Rs300/=sqft	10880	21760	32640sq.ft
		32.00sq	464.00sq	96.00k
3.	Open yard =4k	04k	08k	12k
	@2000/run/4	9.32	18.64	29.00
4.	Offices+strong	60.32	140000	18.80
5.	Cost of animals YCCs @Rs40,000/- each with transportation (5-6 months age)	4.0	8.0	12.00
6.	Shed equipments hand trolleys + spades ropes +buckets ,boxes , uniforms pages chan et	0.10	0.20	0.30
7.	Gawala quarters	5.00	10.40	10.50
	05 marlas with washrooms @4000/-	5 marlas	16 marlas	10 marlas
	1250 sqft+ mess dining and mosque	1.00	4.4	6.4
	personnel			
	<b>Sub total</b>	<b>73.00</b>	<b>158.00</b>	<b>207.40</b>
<b>A</b>	<b>Operational cost</b>	<b>06 months</b>	<b>One year</b>	<b>One year</b>
(i)	VOs-01 @4000	0.24	0.48	
	+LPO, messing			
(ii)	Vety.asstt:-o1 @20,000/-pm	0.12	0.24	0.24
	With mess/dining			
(iii)	Gawalas 01-02-03 @Rs15000/-pm	0.09	0.18	0.18
(iv)	Office assitts-01 @Rs 20,000/-	0.24	0.48	0.48
(v)	Security guard @1500/- with messag)	0.90	0.18	0.18
	<b>Sub total</b>	<b>0.69</b>	<b>1.56</b>	<b>1.56</b>
<b>B</b>	<b>Feed/feeder</b>			
		<b>6 month</b>	<b>One year</b>	<b>One year</b>
(i)	Green			
(ii)	Dry hay	3.6	7.20	7.20
(iii)	Conc;feed 100/-	1.82	3.60	3.60
	<b>Sub.total</b>	<b>43.20</b>	<b>86.40</b>	<b>86.40</b>
<b>C</b>	<b>Miscellaneous</b>	<b>a</b>	<b>b</b>	<b>C</b>
(i)	Utility bills	0.06	0.12	0.15
(ii)	Messging	0.03	0.08	0.09
(iii)	Vet.Med vaccines	0.02	0.03	0.05
(iv)	Unforeseen	0.10	0.15	0.16
	<b>Sub-total</b>	<b>0.21</b>	<b>0.38</b>	<b>0.55</b>
	<b>Gran total</b>	<b>86.00</b>	<b>163.22</b>	<b>242.50</b>

Table No-02 Summarized total investment expenditure on growing YCCs for 2½years

a. Total expenditure of investment		million PKRs		
		2024-25	2025-26	2026-27
I	Land +sheds+utilities etc and open yard	63.32	140.00	209.00
Ii	Cost of YCCs transportation	4.00	8.00	12.00
iii	Gawala's and shed equipment	5.10	10.60	10.80
Iv	Personal salary package and mess/dining	0.66	2.24	2.52
V	Feed and fodder	7.26	14.40	22.00
vi	Miscellaneous utility bills +veterinary medicines and unforeseen	0.21	0.38	0.55
	<b>Total investment</b>	<b>86.00</b>	<b>163.00</b>	<b>242.50</b>
Expenditure investment where land and infrastructure available				
b. Operational cost only				
I	Cost only	15.30	30.60	46.00
Ii	Cost of YCCs now ,grow bulls	04.00	08.00	12.00
iii	Cost of YCCs bulls	0.190	0.190	0.1950
	Margins of 50,000/- each	0.0410	0.940	0.040
	0.072 (six months)	0.270	0.230	0.245.00
	<b>FGP for each</b>	<b>0.230</b>	<b>0.230</b>	<b>0.205</b>

Table No.03 Second Batch investment Expenditure ( $2\frac{1}{2}$  years rearing)

		2027-28 A	2028-29 B	2029-30 C
I	Land - (available)	nil	Nil	Nil
Ii	Cost of sheds offices +stores etc available	nil	Nil	Nil
Iii	Cost of YCCs 100-200-300	4.50	9.00	13.50
Iv	Personel salary package (with messaging ) 10% dinning increase	0.72	1.50	1.50
V	Feed-n-fodder	7.80	15.60	32.20
Vi	Miscellaneous Utility bills +vet.med,uniform ,shed equipments ,	0.25	0.50	32.20
	<b>Total</b>	<b>13.30</b>	<b>28.00</b>	<b>40.95</b>
	Cost of each	0.133	0.140	0.166
	Margins @50.000/-	0.183	0.190	0.216
	Gross income	0.500	05.00	05.00

Table No-04 Third batch of the YCCs investment expenditure rearing upto 03 years, In Central/ Southern Punjab ,Pakistan (PKRs million)

A. Infrastructure		A	B	C
i.	Land (available ) cost	nil	Nil	nil
Ii	Animal sheds +offices +stores+ open yard available	nil	nil	nil
iii	Shed equipment (some replacemants)	0.05	0.08	0.10
Iv	Gawala quarters+mess/dining (available)	nil	Nil	Nil
B. Operational cost				
I	Personnel with 10% increase with messing	0.80	1.60	1.60
		6-months	1 year	1 year
Ii	Feed-n-fodder	7.30	14.60	29.20
iii	miscellaneous	0.30	0.60	0.60
	<b>Total (A+B)</b>	<b>8.45</b>	<b>15.88</b>	<b>31.5</b>
	Cost of eachYCCs	0.084	0.17	0.157
	New grown bulls			
	Margins@Rs40000/-	0.085	0.170	0.160
		0.125	0.210	0.200
	Net income	4.00	4.20	8.00
	If we get a margin of Rs80,000/- per each	0.165	0.250	0.168
	Net income	8.00	8.0	8.0

Table No-05 First Batch Operational Cost When Land and Buildings available

		A/1000	B/2000	C/3000
I	Cost of YCCs	44.00	88.00	132.00
Ii	Feed/fodder	63.00	126.00	242.
Iii	AHCS	0.32	0.46	0.60
Iv	Free messaging /dining	0.71	2.03	3.15
		64.03	129.00	223.75
V	Salaries of personnel for $2\frac{1}{2}$	a. 3.90	7.80	11.70
	Vety medicines	b. 12 months	15.60	23.40
	Vaccines	c.12 months 7.20	15.60	23.40
	miscellaneous	18.30	39.00	58.50
	<b>Sub total</b>	<b>287.60</b>	<b>425.49</b>	<b>854.50</b>

Table no 06 Permanent Structures invested in LFC

A	Land	30.00	60.00	75.00
		20k	40k	60k
b.	Sheds/offices, open yards	167.00	323.00	489.00
c.	Gawala quarter 10+20+30	8.00	8.00	10.00
	Kitchen			
d.	Mess /Dining	10.00	10.00	12.00
	Vety:clinic			
e.	FYM pits	2.00	2.00	2.00
f.	A mosque	0.500	0.500	0.500
	<b>Sub total</b>	<b>4140.00</b>	<b>475.00</b>	<b>588.5</b>
	<b>Total Operational</b>	<b>126.75</b>	<b>276.00</b>	<b>415</b>
	<b>Cost of each</b>	<b>0.127</b>	<b>0.138</b>	<b>0.138</b>
	<b>Marging @Rs50,000/-</b>	<b>0.177</b>	<b>0.178</b>	<b>0.188</b>
	<b>Gross Income</b>	<b>50.00</b>	<b>100.00</b>	<b>150.00</b>

- (iv) Those farmers who own pieces of land and availability of sheds with feed/fodder provided and drinking water ensured the growing /rearing of YCCs to mature bulls for 2½ years up to the age of 03(three) years, is an investment, with good returns . With a safe margin of Rs0.050 million, on each calf (YCC) now grown bulls (Grn.Bls ), fetching a safe Farm Gate Price (FGP) of Rs 0.240, 0.240 and 0.245 million each with an additional income to the discretion to the farmer /investor. This indicated that a new batch of A,B and C categories of YCCs can be purchased again for a second next crop .
- (v) The second batch thus would need only the cost of (a) YCCs A=4.5, B=9.00 and C=13.00million PKRs and (b) the operational cost of feed /fodder and (c) salary package with (d) miscellaneous expenditure (on AHCs, vety medicines and vaccines ,utility bills and mess/dining of farm personnel) for 2½ total amount reinvestment as PKRs 13.30,28.00 and 33.00 and respectively ,as displayed in the table no-03.Thus the LPPFs and new investors can fetch a least Rs0.050 millions as margins on each calf (YCCs) now Mtr. Bls . These YCCs now Mtr . Bls, are sold in Eid ul Adha days for sacrificial purpose only. More profit is expected when livestock Open markets are cross examined .

## DISCUSSION

Young Cattle Calves (YCCs) when purchased at a younger age of 05-06 months with a body weight (B.wt) of 30-40 kgs when grown with ad.lib green fodder , providing 05-8 kgs of dry hay (the wheat bhoosa) and one Kg conc feed (home –made ) as per economical feed formula framed recently (Mr.Hafeez-2023) and other authors ,but based on prevailing ,market rates ,preferably on who resale rates .

Green fodder (seasonal ) is far cheaper in irrigated and semi-irrigated areas of Central and Southern Punjab ,as compared to upper Punjab ,Arid Agriculture Zones and main bigger distts and towns of the country .

Example :

The seasonal green fodder in Southern Punjab was @ Rs 150/-160/- per 40 kgs in Central Punjab in 2022-23 .This varies hardly @Rs14/- 15/- per 40kgs, while in Sargodha /Chakwal and Wazirabad /Gujrat area the fodder was @Rs160/-170/- but this when transported to Rwp-Isbd the sale costs was @Rs350/- to Rs380/-per 40 Kg whereas at fodder retailers it was Rs460/-Rs480/- per 40 kgs, upto the year 2023 and 2024.

**NB-01 :** In some places/areas the cost of land per acres/Quila (Quila)=08 kanals (08k) is in the range of 20 million ,PKRs some times less than 10 millions PKRs per (08k) or even less such as Baren lands /Range lands/ in Southern Punjab. (Distt: of Bhakkar, Layyah ,Muzaffar Garh ,D.G Khan ,(parts of Southern KPK,Tank ,Dikhan ,Rahim Yar Khan ,Bahawal Nagar and Cholistan Desert etc.

**NB-02:** Parts of Balochistan and Upper Sindh Province .The cost of sheds is based on Economical sheds @Rs3000/- per Sqft, and not the luxurious residential buildings .

**NB-03:** Those farmers who own their land and also have their sheds available , they shall be limited for operational costs only .If less resources are available ,lesser investment plan be adopted .

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## FEASIBILITY OF BY PRODUCTS PROCESSING UNITS (LBPPU) AT PROPOSED LIVESTOCK PRODUCTION FARM COMPLEX (LPFC) (2024-26)

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### ABSTRACT

This FDI oriented , business interest concerned article provides basic commercial information for establishing (a) an abattoir / (slaughter House ) state of the art ,(b) Bone Crushing Unit (BUC) ,(c) Hides and skins Processing Unit (HSPU) and (d) Guts Casing and Stomachs Processing Unit (GCSPU) ,in Pakistan, very close to a Livestock Production Farm Complex . (LPFC), preferably in lower /Southern Punjab area.. this LBPPU approach envisages to invest either by local investment and /or Foreign Direct Investment (FDI) ,on (a) ,(b) ,(c) and (d) categories as detailed in this write up. An estimated expenditure once made in these units will get at least 20-30 years and will need only the operational cost on each consignment and continuous source of income ,year after year .the amount of PKRs needed for initial investment on (a) the abbatoire would be 17.42 million ,for (b) The bone crushing unit would require 16.41 million,for (c) Hides and skins processing unit would need 20.88 million (e) The net income generated after deducting operational cost will be very close to 3.724,4.40,4.1.12 and 5.5 , million with exports in one years (100 yccs) operations only .The operational costs for these units for the first year is estimatedly as 5.15,2.4, 3.4, 640 and 1.6 million PKRs totalling to PKRs as 18.00 million. This indicates that livestock by products ,processing is yet another area of livestock industry ,in Pakistan and can be targeted as export oriented .The article ends with attractive recommendations for investors .

**Keywords:** FDI oriented approach Livestock by products processing units abattoir, bone crushing , and other processing units – Pakistan

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### INTRODUCTION

Livestock Industry is spread over many by products processing units ,in Pakistan since many years ,in addition to main products , the milk and meat but the by-products namely (i) Bones and bone product (ii) Hides and Skins (iii) Guts ,Casings and Stomachs, (iv) blood ,(v) head and trotters (four –feet ) with horns and hoofs as well as (vi) animal fat .

It can easily be understood thart 57.5 million cattles and 46.3 million buffaloes productive together with 32 million sheep and 87 million goats, produced 71.4 million tons of meat 2.16 million tons of poultry meat by poultry birds in the country ), as recently reported by PESR (2023-24) .Also simultaneously reported by Livestock Wing ,MNFS and R,GoP (2023-24) ,as well as documented elsewhere (Muhammad Hafeez 2023-24),DRS (2023-24)

The export data of livestock products and by-products is also encouraging but this should be limited to surplus items only (Zargham Nawaz Butt et al-2024) and/ or the new investors in FDI oriented projects only 60:40 rate be observed , utilizing maximum proportion at home.

This write up is developed in establishing livestock products specially meat (mostly beef) based on establishing of an abattoir,( the slaughter house) , in private sector , from where other by -

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products originate and other by-products processing units can be developed depending on financial resources from within the country and or FDI induced entities.

Let us discuss the (a) an Abattoir for which we need ,(i) land ,(ii) infrastructure ,(iii) manpower and finances required for operational activities .An estimated expenditure for a mediocre abattoir, is proposed in the prevailing market rates of 2023, which might differ from place to place .

Table No.01 Investment expenditure on establishing an abattoir (a Slaughter House ) in Pakistan

A	Slaughter house infrastructure	Cost PKRs	Cost in million PKR
1.	Land at lease 1/2 Qilla -04 Kanals(k) (@Rs 1.2-1.3/K)	50,00,000	5.00
2.	Covered area (25x50sqf) 1/4K@Rs4500/-sqft. (1250x4500)	5625000/-	5.60
3.	Open area (anti-morten) One –K (1/2 Shaded)	6,20000/-	0.620
4.	Butchering equipment /knife hanging/ chains ,steel rods, hanging hocks,trollys (steel)	20,00,000	2.00
5.	Chilling system (electricity fitting and standby generator)	5,00,000	0.50
6.	Fats and blood collection drums	1,00,000	0.10
7.	Uniform, disposables with shoes (uniform)	1,00,000	0.100
8.	Meat chamber ,requirements –(saws and mincing machines)	8,00,000	0.800
9.	Separate area for hides and skins	0,300,000	0.300
10.	Stomachs,Guts and casings	0400,000	0.400
11.	Heads +trollers	0500,000	0.500
<b>Sub.total</b>		<b>1,74,20000/-</b>	<b>17.42</b>

B	Operational cost	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year million PKR
(i)	Personnel (salary Package )			
	(a) Manager- 01 @Rs50000/pm	0.60	0.63	0.66
	(b) Butchers- 06@Rs20000pm	2.16	2.24	2.42
	(c) Drivers 2			
	(d) Labors 4 and security persons	1.20	1.26	1.89
	-02	0.60	0.90	0.95
	<b>Subtotal</b>	<b>3.96</b>	<b>5.03</b>	<b>5.92</b>
ii	Miscellaneous			
	(a) Utility bills	4.56	5.03	5.92
	(b) Cold chains	0.20	0.20	0.30
	(c) Delivery vans	0.20	0.30	0.35
	(d) Chemicals	4.00	--	--
	/salts,gases , -dry ice	0.20	0.25	0.26
	(e) POL	0.25	0.30	0.35
	(f) Unforeseen	0.30	0.35	0.35
		9.95	1.15	1.61
<b>Subtotal</b>		<b>10.66</b>	<b>7.58</b>	<b>9.14</b>
<b>Total i+ii</b>		<b>14.62</b>	<b>12.61</b>	<b>15.06</b>

Table No.02 Operational cost of 100 young calves (YCCs) in the FDI-LPEC- (05 days

a week)

A	Personnel	6 months	One year 1 <sup>st</sup> years	Second year
i	Manager (abbot) @Rs50,000 pm/ (1)	0.240	0.600	0.603
li	office assit @Rs 30,000/pm (1)	0.180	0.360	0.378
lii	Butchers 05 @Rs20,000/pm	0.72	1.440	1.510
Iv	Drivers -02	1.240	0.480	0.52
V	Laborers-04	0.480	0.960	1.008
vi	Security -02 @Rs25000/-	0.240	0.480	0.504
	<b>Sub total</b>	<b>2.160</b>	<b>4.02</b>	<b>4.536</b>
B	Miscellaneous			
(i)	Utility bills	0.30	0.60	0.65
(ii)	POL	0.20	0.40	0.45
(iii)	Chemicals	0.20	0.50	0.56
(vi)	Cold chain expo	0.30	0.60	0.66
(v)	Unforeseen	0.20	0.40	0.50
	<b>Sub total</b>	<b>1.20</b>	<b>2.50</b>	<b>2.82</b>
	<b>Total (A+B)</b>	<b>3.26</b>	<b>6.52</b>	<b>7.35</b>

Table No.03 Estimated average carcass weight of different parts of Yccs grown at the LPFC and slaughter House

Sr	YCCs parts	Growth duration 2 years	Total age 2 years	2½ years	Carcass %
i	Live B.wt( legs)	160	180	200	
ii	Carcass wt	117	131	146	72.73%
iii	Meat (beef) 48%	56/6552	63/8253	70/10220	48%
iv	Bones 52%	61/1830	68/2040	76/2280	52%
	<b>Sub-total</b>	<b>117</b>	<b>131</b>	<b>146</b>	<b>100-73%</b>
v	Guts clean	900/kg	06/5000/-	07/6300/-	07/6300/-
vi	Stomach (clean)	800/kg	11/8000/-	12/9600	05%
vii	Blood	1.5	1.6	02	0.9%
viii	Hide/skin	14/3000	15/4000	16/4000	08%
ix	Head and trotters	04/4000	05/4000	16/4000	08%
x	Horns and hoofs	01/30	01/30	01/30	
xi	Fat	03/1400	03/1200	04/1200	02%
	<b>Sub total</b>	<b>39.5</b>	<b>43.6</b>	<b>41.00</b>	<b>22.4%</b>
	<b>Subtotal I @ cost (av)</b>	<b>90060/-</b>	<b>103,170</b>	<b>1,34,930</b>	
	<b>PLUCK</b>				
(a)	Liver	04/4000	05/5000	06/6000	03%
(b)	Heart	01/1000	01/1000	01/1000	
(c)	Kidneys	1/2	1/2	½	
(d)	Spleen	01	01	01	
(e)	Lungs +trachea	02	02	02	
(f)	Testers	1/4	1/4	¼	
	<b>Subtotal</b>	<b>8.75</b>	<b>9.75</b>	<b>10.75</b>	<b>5.4%</b>
	<b>II-@cost</b>	<b>6800/-</b>	<b>7800/-</b>	<b>8800/-</b>	

Table No.04 Comparative Market rates of YCCs grown at 1½, 2 and 2½ years (millions PKR)

Sr	B.wt live kgs	Market rate (a) routine	Market rate(b) Eid ul Adha	Market rate (c)
i	160	0.140	0.160	0.180
ii	180	0.150	0.170	0.190
iii	200	0.170	0.180	0.20
iv	Beef Price @Rs1000/-kg	56,56000	63, 63000	70,70000/-
v	Bones @Rs30/kg	61,1831/-	68,2040/-	76,2280/-
	<b>2½ years feeding + managements</b>			
	Ycc			
	Initial	45000/-		
	Cost(age=6-7 months	300x180=54000/+45000		
		99000		
		300x180=109,500		
	<b>Total</b>	<b>3,18000</b>	<b>-</b>	<b>-</b>
	Two years growing (feeding +management)			
(i)	Initial cost	45000/-		

	Age 06 months			
(ii)	@Rs300/-	1,09,500	1,54,500	264,000
(iii)	Age	1½ years		2½
(iv)	B.Wt	115		190
	Total I+II	96860	110,970	143730
(i)	If sold with bones	117x1000	117000/-	
(ii)		131x1000=131,000		
(iii)		146x1000=146,000		
(vi)	If sold on hoof (live weight)	A@Rs900/-kg 160x144000/=	B-180x900=162000/-	C=200x900=180,000/=
(v)	Margins @ Rs-30,000/ each	1,74,000/-, 1,92000/-		
		,210,000		

### III Bone Crushing and Processing Unit (BCPU)

All the bones collected from the slaughter-House (SH) of the Livestock Production form complex (LPFC) will be stored in an open yard and dried, protected from birds, reptiles, rodents, canines (dogs and cats etc) and large animals. These are subjected to crushing and various mesh size is saved and packed for sale. This is a small investment, as described below in the table no-05.

Table No.05 Showing the investment expenditure on Bone Crushing Processing Unit of LPFC.

A	Land	01 kanals	5440sqft	Cost-approx (PKRs)
				<b>9.250</b>
1	Construction of office, boundary wall and gate etc	05 marlas	25x50 Sqft Half covered	2.50 0.350
2.	Crushing machine	One	Iron +steel	0.60
	<b>Subtotal</b>			<b>03.75</b>
B	Personnel (package)			
I	Manager @30,000/pm			0.720 PKRs
Ii	Office Assit @40,000/-			0.480 -
Iii	Machine operator @20,000			0.240 -
Iv	02 labors	Daily wages		0.480 -
V	Security persons @20,000			0.240
	<b>Subtotal</b>			<b>2.160 (B)</b>
C	Miscellaneous			
I	Packing material			0.65
Ii	Weighing machine			0.18 (C)
Iii	Utility bills			0.12
Iv	Office expenses			0.15
V	Unforeseen			0.23
	<b>Grand total</b>			<b>16.41</b>

### Hides and Skin Processing Unit (HSPU)

This processing unit Does not need a wide range of investment or any sophisticated equipment at the livestock Production Farm (LPF) level except to preserve the hides of large animals (cattles and buffaloes) and skins of sheep and goats, these remain a –fresh with common salt (Not iodine salt) until sent to bigger processing units/larger units such as K asur and Mureedkay Distt Sheikhupura. Such units have now been established in Sialkot, Faisalabad and Karachi. The total number of larger hides and skin processing units was 725 in 1997, registered in 1996-1997, AQD-2022-23, to which AQD-Regd. numbers

were allotted ,as per European Commission (ECs) guide line. The following expenditure /investment is essential for this farm level processing unit as appears in table No-06.

Table No.06 Essential expenditure investment in HSPU of LPFC

Sr	Expenditures	(PKRs) million
i	Land available with slaughter house or bone crushing + processing unit (BCPU) or can be purchased	12.50
ii	Building available (half covered area) of SH/BCPU or constructed	5.20
iii	Manpower –labors available can be used	
iv	Chemicals /common salts etc	0.15
v	Office /personnel/equipment /already available	3.20
vi	Mess/dinning	0.120
	<b>Total</b>	<b>20.88</b>

#### Iv Guts Casing and stomach Processing Unit (GCSPU)

This is a real investment /expenditure area where infrastructure (buildings ,equipment , personnel and related items are required .One such GSCUP must require hardly 05 marlas (25x50 Sqft) covered with an equal space for initial cleaning of 1000 guts / stomachs casing etc and Step Wise Washing (SWW) drying and preservation, stages for processing. The investment expenditure , thus required is detailed below in table no-07.

Table No-07 summarized investment expenditure of GCSPU of LPFC

A	Investment	PKRs million
A	Land -20 marlas (05 marls covered +05 marla open )	12.50
b.	Construction of covered area	5.00
c.	Open yard boundry wall with main gate	3.00
d.	Water supply system	1.50
E	Washing table steel	6.00
f.	Drying /cold chain	3.00
g.	Freezing specially in casing	1.50
h.	Vehicles of LPFCSH can be used	44.00
	<b>Sub total</b>	<b>76.5</b>

B	Personnel salary package with free mess dinning	PKRs million
i	Manager /GCSPU –supervisor@ 50,000pmx12	0.600
ii	Labors -05-20,000/- 0.10x12	1.20
iii	Office assts –one @Rs30,000x12	0.360
iv	Packing material	3.000
	<b>Total</b>	<b>5.16</b>
C	Mascellaneous	
I	Utility bills	0.250
Ii	POL	0.150
iii	Mess/dinning	0.240
iv	Office required	0.450
	Unforeseen	0.150
	<b>Sub total</b>	<b>1.240</b>
	<b>Grand total</b>	<b>50.50</b>

Cumulative investment /expenditure in Abatoir , Bone crushing , H/s processing and /guts casing Units at LPFC..As per estimated calculations for essential requitements for each of the processing units of LPFC is estimated to the tune of PKR 110.40 millions as detailed in table no 09,below;-

Table No.09 Cumulative investment/expenditure on abattoir/SH, bone crushing, H/s processing and guts/casing processing units for one year only .

	Processing	Operation cost (Rs)	PKRs (millions)
i	Abattoir	51,50,00	5.150
ii	Bone crushing	24,00,000	2.400
iii	Hides /hides and skins	3400,000	3.400
iv	Guts /casing	6400,000	6.400
v	Miscellaneous	16,00,000	1.600
	<b>Grand total</b>	<b>1,79,50,000</b>	<b>17.950</b>

## INCOME GENERATION

Income generated out of by-products processing Units at the LPFC, after essential investment expenditure , as per estimated, just for One-Years operation appears as summarizing below, in table No-10 to the tune of PKRs 17.950 millions..

Table No.10 estimated income generated from YCCs (in million), grown and by-products processed In the processing units

A	YCCs	Initial cost feeding management (one year)14.20	Total cost	Margin	Sale million PKRs
	1-100	(180kg-live wf) 4.00	<b>18.20</b>	<b>2.50</b>	<b>20.70</b>
i	By-products	131kg carcass 73%	After one year	2.50	0.207
ii	S/H abattoir	35x1000	64 kgss meat	2027pkrs	0.2 million
iii	Meated produced (beef)	0.114PKRs	69		3.724
iv	Bone crushing				0.114
	52% @30kgx30				
v	Hides and skin processing	0.300	0.300		
vi	Guts and casing processing		0.04		
		0.04			
vii	Head and trotters	800kgs sold as morning dish			0.40
	Sold directly			2.03	
vii	Pluck (liver+kidneys+heart)	6kgx1000=6000x100=0.60			
ii					
ix	Pluck	(lungs+trchea+cooked as dog food ) 2.4kgs x4x400=1600x100 =			0.16
x	Fat 5-6 kgs	Cooked filter			0.20
xi	Blood-dried	Used as cooking ghee @Rs400kgs 2000x100=2,00,000/-			
					1.12
	<b>Grand total</b>	<b>55,2400/-</b>			<b>5.50</b>
	<b>with by products</b>				<b>With exports</b>

## CONCLUSIONS

The estimated costs as obtained for the recent year (2023-24) indicate a great potential for livestock direct growing of YCCs for one year ,and one and half year with direct selling in the Eid -ul -Azha days ,can fetch greater margins while by-products, after slaughter, the meat/ beef sold in local market , 40% whereas 60% exported, to KSA ,UAE ,Behrain ,Qatar and other EU member countries with China ,Japan and South Asian Countries, can fetch good price .

## **RECOMMENDATION**

Livestock sector ,as is growing at a slow but steady speed of 3.9% growth rate annually there is great potential for FDI oriented expenditure, once made ,with lesser annual operational cost will be a sustained gainful business ,not only for investors but employment will also be created for jobless people hence, positive recommendation made .

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**Pakistan Journal of Livestock Sciences (pakjlsc.) For  
Vol-XVII, No.17 (2025)**

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Arrival of Articles (Receiving)	January – May, 2025
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18 <sup>th</sup> & 19 <sup>th</sup> Editorial Board Meetings	July – August, 2025
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Final Acceptance	September – October, 2025
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