

TRADE DESTINATIONS OF LIVESTOCK PRODUCTS AND INPUTS FROM IRAN¹

Massoumeh N. Zadeh*

Bitan Mondal**

Raka Saxena***

Smita Sirohi****

Abstract

This study examines the direction of Iranian trade in livestock products and inputs based on destination-wise Iranian trade data pertaining to years 1997-2006 with the purpose to provide comprehensive information on the trade partners in livestock trade of Iran. The analysis was carried out for the overall period 1997-2006 and two sub-periods, quinquennium ending (QE) 2001 (1997-2001) and QE2006 (2002-2006). The information would be useful to various stakeholders like, business entities, policy makers and animal scientists.

The Iranian import and export basket comprises of both, livestock products and inputs, with predominant share of former. Iran imported the selected livestock commodities for at least one year from 86 countries and exported them to 100 countries during the span of ten years considered in the study. The principal suppliers of livestock product and inputs to Iran were countries from European Union and Oceania. Since the transportation is more difficult in case of bovine animals, Iran was depending basically only on the border country of Pakistan. The requirement of bovine semen by Iran was chiefly met through imports from North America.

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* Research Scholar, NDRI, Karnal,

** Assistant Professor, VisvaBharati, Sriniketan,

*** Sr. Scientist, NCAP, New Delhi

**** Pr. Scientist, NDRI, Karnal

Besides, bovine semen, even vaccines for veterinary medicines were supplied to Iran from Puerto Rico & Virginia Island. There was emergence of some new suppliers to Iran, such as, Bahrain, Hungary, Belgium and Bulgaria. The Iranian exports and re-exports were mostly confined to the neighbouring member nations of Economic Cooperation Organization. India and China were also regular buyers of Iranian livestock products, especially wool. UAE had a sizeable share in Iranian imports and exports of livestock products. UAE has been serving as a conduit of re-exporting products to Iran after importing them from countries that have weak trade relations with Iran, mostly due to political reasons. Similarly, Iranian products have been reaching out to some markets through UAE rather than direct exports.

Key words: Livestock export destinations, livestock import destinations, nature of markets

1. INTRODUCTION

Growing human population, rising per capita income and increasing urbanization are fueling rapid growth in the demand for food from animal origin in Iran. As supply of livestock products responds to the increasing demand, the derived demand for quality genetic materials, pharmaceuticals and feed materials has increased in the country. It emerges from studies that Iran resorts to large imports of livestock inputs to fill in demand-supply gap of inputs required for enhancing livestock production. On the export front, although the oil exports predominate in Iranian trade, yet the country has made the development of non-oil exports a priority (Agence France Presse, 2010). Iran's non-oil exports stood at \$16.3 billion in 2007, a rise of 47.2% over the previous year and \$25 billion in 2010 (SESRIC 2011). The rapid growth in Iran's non-oil exports in recent years was due to a policy of non-dependence on oil income and diversification of goods and services exported.

Agricultural products, such as, fresh and dried fruits, nuts, animal hides, processed foods, and spices, etc. have been an important contributor to the country's non-oil exports. In order to encourage the non-oil exports several policy measures including export subsidy and export bonus have been taken mainly since 2001. The latter policy was first introduced for the leather exporters and then extended to the exporters of agricultural products such as, raisins, eggs, chicken meat, tea, prawn, etc. During 2005-2006 and 2007-2008 Iranian livestock exports went up by 25% from US\$ 305.8 million to US\$ 382.2 million. Livestock by-products such as hides,

intestines, hair and related products constitute part of the country's exports (Iran Agro, 2011). In light of the empirical evidence from Iran that increasing trend in trade had positive impact on surplus value and growth of agricultural sector (Koshteh and Karbasi, 2003), the policy emphasis on enhancing agricultural exports would continue, especially since the agricultural export potential of Iran has not been fully tapped.

Iran's major commercial partners are China, India, Germany, South Korea, Japan, France, Russia and Italy. Top destinations for Iran's non-oil exports are the United Arab Emirates (UAE), Iraq, China, Japan, and India. Since, integration to the world economy has been considered as one of the main requirements to economic development in recent decades, since the mid 90's, Iran has increased its economic cooperation with other countries, including Syria, South Africa, Cuba, Turkey, Pakistan and Venezuela.

The systematic information on the trade destinations of Iranian exports and imports of agri-products in general, and livestock products in particular, is however, extremely limited. The present study provides comprehensive information on the trade partners of livestock products and inputs, which is relevant for various stakeholders like business entities to understand the suppliers and buyers of livestock products and inputs, and for policy makers to formulate and prioritize policy measures that boost trade of livestock products and inputs. Based on the results of the study, the scientific community particularly animal scientists may target their research efforts for improving the quality of livestock products and inputs.

2. METHODOLOGY

The present study is based on Iranian trade data pertaining to years 1997-2006. The data on destination-wise value and volume of exports and imports of livestock products and inputs was taken from the electronic database from three sources; UN Comtrade Database (United Nations Commodity Trade Statistics Database), Statistics Center of Iran and Ministry of Jihad- e-Agriculture. The livestock products and inputs considered in the study are spread over 10 Chapters of Harmonised System (HS) of Trade nomenclature. The Harmonized Commodity Description and Coding System generally referred to as "Harmonized System" or simply "HS" is a multipurpose international product nomenclature developed by the World Customs Organization (WCO). The system is used by more than 177 countries and economies as a basis for their Customs tariffs and for the collection of international trade statistics. Moreover, 98 per cent of the merchandise in international trade is classified in terms of the HS.

The analysis was carried out for the overall period 1997-2006 and two sub-periods, quinquennium ending (QE) 2001 (1997-2001) and QE2006 (2002-2006). The changes in the level and pattern of trade were examined using statistics like, percentage share, percentage change, ratios and growth rates.

Direction of Trade: To analyse the direction of Iranian trade, the market share of c^{th} supplier country in Iranian imports (IM) of k^{th} commodity was worked out from the import value estimated for QE2001 and QE2006

$$\text{Market Share}_c^M = \text{QE}_{kc}^M / \text{QE}_k^M * 100$$

where

QE_{kc}^M = Import value of k^{th} commodity by c^{th} supplier for QE2001 and QE2006

QE_k^M = Total Iranian import value of k^{th} commodity for QE2001 and QE2006

Based on data of QE2006 major suppliers were identified for each commodity and changes in the direction of trade also inferred upon through ratio of trade value in QE2006 over QE2001

$$(\text{Total Value}_c^M)^{\text{QE2006}} / (\text{Total Value}_c^M)^{\text{QE2001}}$$

where

$(\text{Total Value}_c^M)^{\text{QE2006}}$ = Total value of import by c^{th} supplier in QE2006

$(\text{Total Value}_c^M)^{\text{QE2001}}$ = Total value of import by c^{th} supplier in QE2001

Similarly, market share of p^{th} buyer country in Iranian exports of k^{th} commodity was worked out from the export value estimated for QE2001 and QE2006

$$\text{Market Share}_p^X = \text{QE}_{kp}^X / \text{QE}_k^X * 100$$

where

QE_{kp}^X = Export value of k^{th} commodity by p^{th} buyer country for QE2001 and QE2006

QE_k^X = Total Iranian export value of k^{th} commodity for QE2001 and QE2006

Based on data of QE2006 major buyers were identified for each commodity and changes in the direction of trade also inferred upon through ratio of trade value in QE2006 over QE2001

$$(\text{Total Value}_p^X)^{\text{QE2006}} / (\text{Total Value}_p^X)^{\text{QE2001}}$$

where,

$(\text{Total Value}_p^X)^{\text{QE2006}}$ = Total value of import by p^{th} importer in QE2006

$(\text{Total Value}_p^X)^{\text{QE2001}}$ = Total value of import by p^{th} importer in QE2001

Classification of Markets: Attempts were made to sharply focus on the changes that have taken place in the trade portfolio of Iran by specifically identifying the new markets that have entered in the import or export basket of the country. The criterion of classification was the number of years trade relations exist and the level of trade value:

- i) Trade with a country for at least 3 consecutive years in the two periods considered as **Regular Market**.
- ii) Trade with a country began in later quinquennium, for at least 3 years in the period, and trade value at least \$ 100 thousand during the period considered as **Emerging Market**.
- iii) Occasional trade for few years (< 5) from 1997-2006 or sporadic trade of small value considered as **Occasional or Erratic Markets**.

3. RESULTS AND DISCUSSION

The Iranian import and export basket comprises of both, livestock products and inputs, with predominant share of former. In QE2001, livestock products had 92.9 per cent share in total value of livestock imports, the remaining 7.1 per cent being attributable to livestock inputs. In the later period, 2002-2006 (QE2006), the share of livestock products declined to 77.2 per cent while that of inputs increased to 22.8 per cent. The importance of livestock products in the Iranian imports declined not only in relation to livestock inputs, but also there was an absolute decline in the total value of imports of livestock products from \$894.73 million in QE2001 to \$773.21 million in QE2006, while the value of inputs increased from \$67.91 million to \$228.69 million during the same period. This indicates that the development priority in Iran is increasingly shifting towards developing the domestic livestock sector through higher imports of livestock inputs rather than livestock products.

Interestingly, in relative terms, the export basket showed similar pattern of change over time. The livestock products occupied lions share in the total exports (99 per cent) and the share of livestock inputs was negligible (1 per cent) in QE2001. However, the share of livestock inputs increased rapidly to 17.3 percent in QE2006. But unlike in case of imports, there was an increase in total value of exports of both, products and inputs value from \$ 619.53 million (QE2001) to \$ 948.50 million (QE2006) and from \$6.26 million (QE2001) to \$198.48 million (QE2006), respectively.

3.1 Livestock Products and Inputs: Import Basket

Livestock Products: Livestock products consist of meat & edible offals, meat preparations, dairy products, eggs, wool & hair, hides & skins, tanned hides & skins, prepared leather and other livestock products (e.g., guts, bladders and stomachs of animals). The level of import of livestock products and inputs along with the growth rate are given in Table 1. Meat & edible offals and dairy products occupied more than 82 per cent share in the total livestock product imports in both the time-periods. Over the period of time, there was a notable change in the share of these two products. In QE2006, the dairy products replaced meat & edible offals as the most important import product group, as the share of later reduced drastically to 31.64 per cent in QE2006 from 56.65 percent in QE2001, while that of dairy products almost doubled. The import basket showed some diversification during 2002-2006 with rising share of eggs and tanned hides & skins in QE2006 vis a vis QE2001. Out of the 9 product groups mentioned earlier, 3 product groups, viz. meat preparations, prepared leather and other livestock products either had negligible share or were not imported at all by Iran.

Table1 : Changes in Level of Import of Livestock Products and Inputs

Commodity	Import Values (million \$) QE2006	% change in QE2006 over QE2001	Compound Annual Growth Rate(%)	
			QE2001	QE2006
Meat & Edible Offals	244.60	-51.74	-23.18	-10.14
Dairy products	392.85	63.10	-0.38	10.70
Eggs	12.77	522.39	1.41	-34.24
Meat Preparations	Neg.	@	N.A	#
Hides & Skins	2.07	-22.61	47.07	2.21
Tanned hides & Skins	22.58	@	N.A.	-58.00
Prepared leather	Neg.	@	N.A	#
Wool & Hair	98.27	-30.77	22.22	-13.34
Other Livestock Products	Nil	@	N.A	N.A
Machinery	130.58	328.63	-4.36	-33.63
Vaccines for veterinary medicine	47.57	208.00	50.07*	12.18
Live animals	25.41	132.79	11.28	9.55
Bovine Semen	13.67	50.95	23.48	9.18
Animal feeds	11.44	466.08	-46.26	121.98

Notes:@ Not computed as either nil or negligible imports made in QE2001

insufficient information for computing CAGR; Neg. < \$0.05 million; *pertains to 1999-2001

The share of meat and edible offals in the import basket declined as the value of imports of this product group decreased by about 52% in QE2006 as compared to QE2001. The product

group registered negative growth in both the sub-periods. Besides meat and edible offals, the import value of hides & skins and wool & hair had also declined in the later quinquennium over the former.

The rising demand of dairy products and eggs in Iran was clearly reflected in the high and positive percent change in QE2006 vis a vis QE2001. Despite of increase in the total value of imports in QE2006 over QE2001, the compound annual growth rate of eggs in QE2006 was negative due to highly volatile imports of this product during 2002-2006, increasing from \$2.03 million in 2002 to \$5.01 million in 2003, declining to \$1.28 in 2004, rising once again to \$4.18 million in the subsequent year to fall once again to nearly \$0.27 million in 2006. Similarly, the imports of tanned hides and skins were very volatile during 2002-2006 although their absolute value in this period was much higher than in earlier period of 1996-2001. Dairy products had registered firm growth in import value, increasing continuously from \$50.63 million in 2002 to \$126.45 million in 2005.

Livestock Inputs: Iran was importing milking machinery, dairy machinery and machinery for preparing animal feeding stuffs (Table 1). There was a more rapid growth in the import of former (milking machines & dairy machinery) than the later, since Iranian Government has been encouraging private investment in dairy sector, the machinery was imported to facilitate the establishment of dairy processing units. Next to machinery, vaccines for veterinary medicine were the important item of input import. The inter-quinquennium period showed more than double increase in the import value. Iran had also imported live animals worth \$25.41 million in QE 2006, up from import value of \$10.91 million in QE 2001. In order to increase the production potential of its dairy animals, large doses of semen amounting to over \$13.5 million were imported by Iran during 2002-2006. In the earlier period (1997-2001) also, bovine semen of about \$9 million was imported.

3.2 Livestock Products and Inputs: Export Basket

Livestock Products: The Iranian exports of livestock products were mainly of by-products like hides and skins, tanned and raw (43% value share in QE2006) and other livestock products comprising guts, bladders and stomachs of animals (27% share). These products together accounted for about 80% value share of exports in QE2001 as well. Wool & hair also had a sizeable share (7.8%) in Iranian exports of livestock products.

Other than these by-products, Iran also exported eggs worth \$ 82.31 million during 2002-2006 (Table 2). The share of eggs in the export basket has stagnated at about 9% during the study period. However, meat & edible offals and dairy products became more visible in the export basket in the latter half of the study period. By and large, as in case of import of livestock products, a trend towards diversification of exports emerged in the QE2006 as compared to QE2001.

During the two sub-periods, 1997-2001 and 2002-2006, except for exports of raw hides and skins, the export value of the livestock products had increased in the later period. The intra-quinquennium growth rates had also been positive for the commodity groups indicating that in consonance with the opening-up policy of Iranian economy, the livestock products increasingly made in-roads in the markets of other nations.

Table 2: Exports of Livestock Products and Inputs

Commodity	Export Values (million \$) QE2006	% change in QE2006 over QE2001	Compound Annual Growth Rate (%)	
			QE2001	QE2006
Meat & Edible Offals	52.74	339.6	22.45	27.26
Dairy products	75.52	778.4	144.31	96.62
Eggs	82.31	43.7	153.86	21.84
Meat Preparations	3.72	@	5.05	92.18
Hides & Skins	58.76	-77.4	-14.62	-33.77
Tanned hides & Skins	355.33	413.5	83.66	23.44
Prepared leather	0.41	@	#	173.43
Wool & Hair	63.27	26.8	28.82	12.57
Other Livestock Products	256.40	58.3	-5.94	27.42
Live animals	189.53	3965.79	25.35	138.52
Animal feeds	3.36	122.35	700.46*	-29.36
Vaccines for veterinary use	0.02	162.25	#	#
Machinery	5.56	7290.22	-19.45	617.40

Notes: @ Not calculated as value in QE2001 was nil or negligible

insufficient information for computing CAGR; *pertains to 1998-2001

Livestock Inputs: The Iranian exports were confined to three inputs: live animals, animal feeds and machinery (Table 2). Among the live animals, the exports were principally that of sheep and poultry. Bovine animals worth \$1.83 million in export value were exported in the recent quinquennium. Interestingly, for two input items viz. animal feed preparations and dairy machinery, the export value in QE2006 ranges from \$3.36 million to \$5.56 million, respectively.

It may be recalled that Iran relies heavily on the imports for catering to the domestic demand of these inputs. However, growth in exports of these items indicates that part of the import demand was for the purpose of re-exports.

3.3 Direction of Livestock Product Trade

The market share of various countries in total import (or export) of product has been worked out for both the sub-periods. Also, the ratio of trade value in QE2006 : QE2001 was calculated to discern the extent of increase or decrease in the trade value over time. The countries have been ranked according to their market share in the QE 2006 and important features of change in the trading partner (if any) have been elaborated for each important commodity traded by Iran.

Dairy Products

Milk powders:The bulk of imports of milk powder and cream of low or high fat content were made by Iran from the European countries (Table 3). Besides, European countries like, Germany, France, Belgium and Switzerland, New Zealand also accounted for about 8-9% market share in case of SMP and unsweetened milk powder of >1.5% fat. India was a minor player in SMP exports to Iran, accounting for about 2 % of Iranian import demand. Hazra (2005) reported that Iran began import of milk powders from India after 1997, although Indian exports to Iran highly instable over time but average quantity of exports increased from 3250 kg in 1997-2000 to 61165 kg in 2001-04.

Interestingly, UAE had a sizeable share in Iranian import market of milk powders, despite of the fact that UAE itself imported milk powders worth \$112.55 million during QE2006. UAE has been serving as a conduit of re-exporting products to Iran after importing them from countries that have weak trade relations with Iran, mostly due to political reasons. In fact, about 72% of exports of milk powders by UAE during this period were simply re-exports. Dubai is the center of UAE re-export trade and it is well-known that among the most important markets for Dubai's re-export trade are Iran and the southern countries of the former Soviet Union. On the exports side, besides, re-export via UAE, Iran was also exporting milk powder directly to the neighbouring Gulf countries and other Islamic nations.

Table 3: Direction of Iranian Imports and Exports of Milk Powder & Cream

Country	Market Share (%) in Imports:QE2006	Change in QE2006 over QE2001	Country	Market Share (%) in Exports:QE2006	Change in QE2006 over QE2001
040210 Milk powder <1.5% fat (SMP, Milk food for babies)					
Germany	58.03	4.12	Yemen	25.69	0.39
France	9.86	0.40	Iraq	23.85	-
New Zealand	8.59	-	Afghanistan	17.12	3.00
Belgium	8.42	1.58	UAE	12.90	3.37
UAE	4.49	263.19	Syria	9.16	0.35
India	1.86	-	Others	11.28	10.86
Others	8.74	38.46			
040221 Unsweetened milk powder & cream of >1.5% fat					
France	48.79	-	UAE	42.00	-
UAE	19.70	-	Iraq	16.56	-
New Zealand	9.80	-	Qatar	14.49	-
Germany	6.08	25.91	Kuwait	13.26	-
Bahrain	4.43	-	Uzbekistan	5.96	-
Others	11.17	3.02	Others	7.73	-
040229 Sweetened milk powder & cream of >1.5% fat (WMP)					
France	54.21	185.86	Syria	46.93	-
Belgium	37.58	-	Kuwait	16.57	-
Switzerland	6.13	-	Tajikistan	16.29	-
Others	2.07	-	Azerbaijan	6.67	
			Others	13.54	1.15

Notes: “-“ indicates no or negligible trade in QE2001

Cheese: Cheese exports from Iran were also targeted mostly to its bordering nations, (Table 4) expect for some exports of fresh cheese to Germany. Fresh cheese exports from Iran to all its destinations were higher in QE2006 as compared to QE2001 as is discernible from more than unit ratio of trade values during the periods. The imports of cheese were confined to grated or powdered cheese from Denmark, Malaysia and Canada.

Table 4: Direction of Iranian Imports and Exports of Cheese

Country	Market Share (%) in Imports:QE2006	Change in QE2006 over QE2001	Country	Market Share (%) in Exports:QE2006	Change in QE2006 over QE2001
040620 Grated or powdered cheese of all kind					
Denmark	60.53	-	Iraq	76.68	-
Malaysia	39.47	-	Pakistan	11.51	-
Canada	6.08	-	Turkmenistan	5.57	-
			Afghanistan	4.47	-
			Others	1.76	-

Country	Market Share (%) in Exports:QE2006	Change in QE2006 over QE2001	Country	Market Share (%) in Exports:QE2006	Change in QE2006 over QE2001
40610 Fresh Cheese including whey cheese and curd			40630 Processed cheese not grated or powdered		
Iraq	47.22	5434.97	Iraq	83.65	846.10
Afghanistan	27.12	578.48	Afghanistan	10.38	-
UAE	12.61	147.29	Kuwait	3.67	-
Germany	5.03	1.55	Others	2.30	-
Others	7.99	32.80			
040690 Other cheese					
Iraq	91.5	1345.11			
Turkmenistan	3.39	13.09			
Afghanistan	3.18	-			
Others	1.92	33.13			

Notes: “-“ indicates no or negligible trade in QE2001

Other dairy products:For the other dairy products, such as whey based products, butter and fat based products, the imports were European destinations and New Zealand while exports were confined to neighboring countries (Table 5).

Table 5: Direction of Iranian Trade in Whey based, Fat based and Other Selected Dairy Products

Country	Market Share (%) in Imports:QE2006	Change in QE2006 over QE2001	Country	Market Share (%) in Exports:QE2006	Change in QE2006 over QE2001
0404 Whey & products consisting of natural milk constitutes					
Netherlands	69.30	-	Pakistan	81.85	-
Germany	11.98	-	Azerbaijan	5.12	-
France	8.48	-	Afghanistan	4.35	-
Belgium	5.97	-	Turkmenistan	4.27	-
Others	4.26	-	Others	4.42	90.87
0405 Butter and other fats oils derived from milk , dairy spread					
New Zealand	39.74	1.05	Iraq	75.16	2884.28
Netherlands	20.74	3.41	Afghanistan	22.59	-
UAE	17.01	3.69	Others	2.25	3.20
Bahrain	10.70	7.78			
Denmark	6.11	1.54			
India	0.07	-			
Others	5.62	111.23			
Country	Market Share (%) in Exports:QE2006	Change in QE2006 over	Country	Market Share (%) in Exports:QE2006	Change in QE2006 over

	QE2001				QE2001
0401 Milk & Cream, neither concentrate nor sweetened			040310 Yoghurt		
Iraq	85.02	363.07	Iraq	95.24	-
Afganistan	7.08	-	Afghanistan	3.67	-
Kuwait	4.25	32.50	Others	1.07	155.18
Others	3.65	79.01			

Notes: “-“ indicates no or negligible trade in QE2001

Meat and Eggs

Meat: The major suppliers of meat and edible meat offals to Iran were Ireland, Brazil and Belgium, catering to about 84% of the Iranian import demand (Table 6). Although India is world’s number one nation in bovine population, but as meat industry is still at nascent stage in the country, it accounts for only 1.0 % of Iranian market. Also, during QE2001 and QE2006 the increase in the value of Indian export to Iran was very minor in the second sub-period. The Irish trade with Iran had risen very sharply in QE 2006 compared to QE 2001. Mirzaei *et al.* (2005) studied exports of poultry products (poultry meat and hen eggs) to the Middle East region during 1990-2002. He found that Iran’s exports of these products to the Middle East were not stable due to problems in coordination of production policies. It was observed that Iran got lower price per a kilogram export than other competing countries. This could be attributed to lower quality of chicken meat supplied by Iran compared to the its competitors or poor bargaining power. The author contended that the trade and production policies and economic behaviour of producers and exporters were in such a way that they could not show an appropriate and timely response in the region. The instabilities in export trends during the study period led to the conclusion that there is no well-defined trade strategy.

Eggs: The Iranian demand for eggs was fulfilled by three countries, Netherlands, Germany and UK. In this case also, the share of India was only about 1 percent, and imports of eggs from India took place only in the later sub-period, i.e., QE2006. As mentioned earlier, Iran was importing eggs as well as exporting the same. The direction of Iranian exports clearly shows that Iran was serving as a transit point for catering to demand of eggs by Iraq, Tajikistan & Afghanistan as political reasons may have constrained their direct imports from the European nations.

Table 6: Direction of Iranian Trade in Meat and Eggs

Country	Market Share (%) in Imports:QE2006	Change in QE2006 over QE2001	Country	Market Share (%) in Exports:QE 2006	Change in QE2006 over QE2001
02 Meat And Edible Meat Offal					
Ireland	36.08	13.68	China	63.12	3.20
Brazil	31.56	0.83	Vietnam	20.36	2743.20
Belgium	15.84	-	Saudi Arabia	4.11	5.73
France	8.04	0.17	Others	12.40	62.18
India	0.78	0.05			
Others	7.67	11.45			
0202 Meat of Bovine Animals, Frozen					
Ireland	39.94	1.46			
Brazil	34.69	13.25			
Belgium	18.12	-			
India	1.00	0.50			
Others	-	13.64			
0407 Birds Eggs, in Shell, Fresh, Preserved or Cooked					
Netherlands	36.55	-	Iraq	45.21	2.07
Germany	27.66	1.98	Tajikistan	18.31	9.70
United Kingdom	18.30	8.75	Afghanistan	16.93	64.60
India	1.05	-	Turkmenistan	5.97	0.97
Others	10.21	-	Azerbaijan	5.54	0.20
			India	0.01	-
			Others	8.20	26.01

Non-edible Livestock Products

Hides and skins: Among the various non-edible livestock products, tanned or crust hides and skins of bovine/equine animals worth \$ 22.30 were imported by Iran in the QE 2006. Of this UAE had the predominant share (84%) but India also accounted for about 10% of Iranian imports (Table 7). The market concentration was also high for imports of tanned or crust hides & skins of sheep and lamb as only two countries, Turkey and Nepal were exporting this product to Iran. However, overall imports of this commodity by Iran were very small. Iran has been exporting large volume of tanned and raw hides and skins of sheep and lamb. Italy and Turkey have been important markets for Iran. Also, these Iranian products are coming to India and there has been increase in value of exports by Iran to India, especially for tanned products.

Wool and hair: Carded or combed wool and hair was imported from several markets, such as Australia, China, Chile, Uruguay, India etc. Also, unlike most other products where exports by Iran were confined to neighbouring countries, in case of carded or combed wool and hair, Iranian

products found destination in European markets, China and India. China and India appear as both importers and exporters of this product to Iran as the type of wool and hair imported and exported were different. Besides, carded or combed wool and hair, India was also importing uncarded or uncombed wool from Iran. In fact over 50% of Iranian exports worth \$12.33 million in QE 2006 were targeted towards India. Other than India, Pakistan and Afghanistan were importers of these products from Iran. Iran was exporting uncarded or uncombed fine or coarse animal hair. Belgium, Afghanistan, UAE, China and Italy were important destinations of this product.

Other livestock products: Guts, bladders and stomachs of animals that are primarily used for making natural food casings were mainly imported by Germany. About $\frac{3}{4}$ of the Iranian exports were made to Germany. Azerbaijan also emerged as market for this product in the second quinquennium.

Table 7: Direction of Iranian Trade in Non-edible Livestock Products

Country	Market Share (%) in Imports: QE2006	Change in QE2006 over QE2001	Country	Market Share (%) in Exports: QE2006	Change in QE2006 over QE2001
4104 Tanned or crust hides & skins of bovine/ equine animals					
UAE	88.74	-	Azerbaijan	57.03	-
India	10.38	583.76	Romania	8.84	6.54
Others	0.88	0.02	Turkey	8.18	1.30
			Italy	7.74	4.95
			India	0.31	0.23
			Others	13.48	695.03
4105 Tanned or crust skins of sheep or lamb					
Turkey	91.52	-	Italy	58.58	3.12
Nepal	8.47	-	Turkey	16.81	5.70
			Pakistan	15.5	9.34
			India	4.70	1.24
			Others	4.40	98.79
5105 Wool & fine or coarse animal hair, carded or combed					
Australia	26.79	0.48	China	36.84	11.00
China	14.96	-	Belgium	17.65	2.13
Uruguay	11.90	0.53	Italy	13.00	0.33
Chile	11.57	3.60	UK	12.21	1.54
India	9.67	37.48	India	8.05	0.89
Others	25.70	1.09	Afghanistan	5.78	-
			Others	6.44	11.28
Country	Market	Change in	Country	Market	Change in

	Share (%)in Exports:QE20 06	QE2006 over QE2001		Share (%)in Exports:QE2 006	QE2006 over QE2001
4102 Raw skins of sheep or lambs			5101 Wool not carded or combed		
Italy	68.78	0.185	India	53.08	-
Turkey	28.50	0.39	Pakistan	19.82	0.94
India	0.12	0.25	Afghanistan	18.49	8.38
Others	2.59	2.59	UAE	3.34	2.68
5102 Fine or coarse animal hair, not carded or combed			0504 Guts, bladders & stomach of animal		
Belgium	30.70	1.75	Germany	73.61	1.37
Afghanistan	27.11	11.60	Azerbaijan	17.62	-
UAE	21.59	0.88	Switzerland	5.03	0.84
China	8.07	0.69	Other	3.74	1.06
Italy	6.54	19.20			
Others	5.95	1.66			

3.4 Direction of Livestock Input Trade

Live animals: Live animals, especially poultry birds were imported chiefly from UK (Table 8). Germany, Pakistan, Netherlands and Canada also had some presence in the Iranian market. However, for bovine animals as transportation is more difficult Iran was depending basically only on the border country of Pakistan. Jadoon (2010) reported that live animals are also smuggled to Iran from Pakistan and Turkey with the knowledge of Iranian authorities. These animals are quarantined for a specific period and sent to slaughter houses when cleared healthy by the Iran Veterinary Organization. Iranian businessmen have established industrial slaughterhouses at Zahiden, Zabol and Khash to slaughter and process the smuggled animals from Pakistan. Iran has 50 industrial units and 360 traditional slaughter houses spread all over the country. As reported in other studies, Iran has been importing live animals (mostly, poultry birds) from India. In 2005-2006 live animal export from India was Rs.26.55 crore and Iranian share was Rs. 1.32 crore.

Bovine Semen: The requirement of bovine semen by Iran was chiefly met through imports from North America. Due to trade sanctions imposed by USA on Iran, semen exports have been taking place through Puerto Rico and Virginia Island, rather than mainland USA. The value of semen import from these two destinations was 10 times higher in QE2006 than QE2001.

Vaccines: Besides, bovine semen, even vaccines for veterinary medicine were supplied to Iran from Puerto Rico & Virginia Island, although for vaccines the top-two exporters to Iran were

France and Netherlands. India has also supplied vaccines worth \$136 thousand to Iran during QE2006.

Animal feed preparations: Another important item of livestock input imports was also coming from European nations. India has also made some inroads into the Iranian market for prepared animal feed. Like most other products the exports of animal feed preparations were made by Iran to its bordering nation.

Machinery: Milking & dairy machinery imports surged in the later half of the decade from 1997-2006. The increase took place from all the important destinations, viz. Germany, Denmark, Sweden and Italy. The import value from India was 40 times higher in QE 2006 as compared to QE 2001, albeit India still had negligible share in Iranian market for this commodity group. Iran made exports of milking & dairy machinery to Venezuela only for one year but as the value of exports was quite high (\$4.5 million), share of this country worked out as 83% in Iranian export.

Table 8: Direction of Iranian Trade in Livestock Inputs

Country	Market Share (%) in Imports:QE2006	Change in QE2006 over QE2001	Country	Market Share (%) in Exports:QE2006	Change in QE2006 over QE2001
01 Live animals					
UK	58.36	3.22	Kuwait	55.22	60.25
Germany	11.22	0.78	UAE	32.61	328.65
Pakistan	7.68	-	Oman	3.48	-
Netherlands	6.68	1.11	Qatar	3.19	17.25
Canada	4.44	4.11	Others	4.04	771.04
India	0.46	-			
Others	11.15	30.77			
0102 Live bovine animals					
Pakistan	97.51	-	Afghanistan	28.83	-
UAE	2.48	-	Kuwait	71.17	-
230990 Animal feed preparations					
Netherlands	50.35	7.62	Armenia	59.25	11.90
France	11.63	-	Afghanistan	26.12	1.27
Austria	8.19	-	Azerbaijan	4.79	-
Belgium	7.29	7.16	Uzbekistan	4.20	-
India	0.03	-	Others	5.56	5.30
Others	22.51	2.29			
8434 Milking machinery & dairy machinery					
Germany	38.14	9.23	Venezuela	83.41	-
Denmark	32.60	4.55	Azerbaijan	9.02	-
Sweden	10.28	3.15	Others	7.57	-
Italy	5.79	2.70			
India	0.38	40.16			

Others	12.80	-			
Country	Market Share (%) in Imports:QE2006	Change in QE2006 over QE2001	Country	Market Share (%) in Imports:QE2006	Change in QE2006 over QE2001
051110 Bovine semen			300230 Vaccines for veterinary medicine		
Canada	39.74	2.01	France	33.40	3.57
Pureto Rico & US Virginia Island	31.46	10.07	Netherland	30.01	2.67
Netherland	15.47	0.78	Italy	12.41	1.80
Ireland	10.19	6.27	Pureto Rico & US Virginia Island	4.91	9.19
Others	3.14	1.22	India	0.29	-
			Others	18.96	37.94

3.5 Nature of Markets

During the span of ten years considered in the study, Iran had imported the selected livestock commodities for at least one year from 86 countries and exported them to 100 countries. However, a large number of suppliers and buyers were either occasional or erratic, viz. trade relations were either sporadic or highly volatile in nature.

Suppliers: The regular suppliers of the livestock sector commodities were basically from European Union and Oceania. Some Asian countries, like, India, China and UAE; and few other nations, Brazil, Chile, Uruguay and Croatia were also supplying the livestock commodities in Iranian markets (Table 9). However, as the market share of some of these countries was small they were not listed explicitly in the discussion on destination wise trade in the earlier section. There was emergence of some new suppliers to Iran, such as Bahrain, Hungary, Belgium, Bulgaria, Pakistan and Pureto Rico & US Virginia Island. By and large, these countries have started exporting to Iran only in the later sub-period. Further, the trade between Iran and EU countries, specially, Italy, Germany, Spain, Netherlands, France, Belgium and UK has been on the rise.

Table 9: Nature of Iranian Trade Markets in Livestock Sector

Regular Suppliers
Australia, Brazil, China, Chile, Croatia, Denmark, Finland, France, Germany, India, Ireland, Italy, Netherlands, New Zealand, Spain, Sweden, Switzerland, United Kingdom, United Arab Emirates, Uruguay
Emerging Suppliers
Bahrain, Belgium, Bulgaria, Pakistan, Hungary, US Puerto Rico & US Virginia Island
Regular Buyers
Azerbaijan, Bahrain, China, India, Iraq, Kuwait, Pakistan, Qatar, United Arab Emirates, Turkey, Turkmenistan, Hong Kong, Switzerland, United Kingdom, France, Germany, Spain, Italy
Emerging Buyers
Afghanistan, Georgia, Vietnam

Buyers: The regular markets for the Iranian exports and re-exports are mostly member nations of Economic Cooperation Organization (ECO), an intergovernmental regional organization established in 1985 by Iran, Pakistan and Turkey for the purpose of promoting economic, technical and cultural cooperation among the member states. In the fall of 1992, the ECO expanded to include seven new members, namely Afghanistan, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. The 10 member countries signed The Economic Cooperation Organization Trade Agreement (ECOTA) in July 2003 in Islamabad. ECO Trade Promotion Organization (TPO) is a new organization for trade promotion among member states located in Iran (2009). Besides the ECO member countries, India and China are also regular buyers of Iranian livestock products, especially wool. Also the developed nations of Europe are regular destination of exports from Iran for wool products and other livestock products like, guts, bladders and stomachs of animals. There are few new markets that Iran has explored such as Afghanistan, Georgia and Vietnam. In other destinations its exports have been occasional and erratic.

4. CONCLUSIONS

During the span of ten years considered in the study, Iran had imported the selected livestock commodities for at least one year from 86 countries and exported them to 100 countries. The principal suppliers of livestock product and inputs to Iran were countries from

European Union and Oceania. Since the transportation is more difficult for bovine animals, Iran was depending basically only on the border country of Pakistan. The requirement of bovine semen by Iran was chiefly met through imports from North America. Due to trade sanctions imposed by USA on Iran, semen exports have been taking place through Puerto Rico and Virginia Island, rather than mainland USA. Besides, bovine semen, even vaccines for veterinary medicines were supplied to Iran from Puerto Rico & Virginia Island. There was emergence of some new suppliers to Iran, such as, Bahrain, Hungary, Belgium and Bulgaria.

The Iranian exports and re-exports were mostly confined to the neighbouring member nations of Economic Cooperation Organization. There are some new emerging partners like Afghanistan, Georgia and Vietnam. Iran may strengthen the trade relationships with these emerging partners. India and China were also regular buyers of Iranian livestock products, especially wool. A lot of potential exists for livestock trade with India, the possibilities can be explored and initiatives can be taken to tap this trade potential. UAE had a sizeable share in Iranian imports and exports of livestock products. UAE has been serving as a conduit of re-exporting products to Iran after importing them from countries that have weak trade relations with Iran, mostly due to political reasons. Similarly, Iranian products have been reaching out to some markets through UAE rather than direct exports.

At present, there is no evidence of whether the existing trade is based on the economic considerations or an outcome of mutual relationships and political considerations. This is a researchable issue and needs to be explored in further studies.

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