

Full Length Research Paper

Production and trade of camel products in some Middle East countries

F. Mirzaei

Livestock Production Management, Animal Sciences Research Institute of Iran, P.O.Box: 31585-1483, Karaj, Iran.
E-mail: farmir2005@gmail.com.

Accepted 17 December, 2012

There are approximately 25 million camels in the world where the global market for camel products has a potential of US\$10 billion a year based of Food and Agriculture Organization (FAO) of United Nations. The comparative advantages of the camel as a dairy animal over the other species in the same environment are difficult to quantify; however in absolute terms, it is widely recognized that the camel produces more milk for a longer period of time than any other animal under the same condition. Camel meat and milk are utilized in some Arabic and African countries and also Iranian people, in marginal of desert, use the camel meat. At present, there are about 148000 camels in Iran that mainly are dromedary (one humped camel). This number can potentially increase by 600000. Camel raising must not only be socially acceptable, but also economically viable, so management of camel farming must be taken into consideration to increase the farmer income. This study aimed to clarify the performance of production as well as trade of camel population and products in some Middle East countries. Data were collected by FAO statistics (FAO, 2011) which is available online through this organization's formal website for the period of 2000 to 2010. As a result, there has been a growing tendency to meet demand, particularly for milk, through imports. Thus, understanding the inter-relationships and conflicts between objectives and policies is a critical step towards designing and implementing more effective incentive systems. It was concluded that the meat and dairy production system of camel in the Middle East countries, especially Iran, regrettably received little attention because of unknown profit abilities of this animal.

Key words: Camel, production, trade, Middle East countries.

INTRODUCTION

Camels (*Camelus dromedarius* and *Camelus bactrianus*) are living in dry lands where there is little food and water available. Camel is used for meat, milk, fiber (wool and hair), for transport. Camel is a large ruminant native to the desert regions, able to survive without water for several days, and on a small amount of food which may be quantitatively and qualitatively inappropriate for other kinds of ruminants (Raji, 2009).

Economical capabilities of camel's products, including meat in providing a part of protein needs of urban and rural societies; providing a part of raw materials of textile industry including skin and fibers; and also providing a part of work force in agriculture will provide enough motivation for researchers in developing countries who think about alternative agriculture or stable agriculture, and will justify the execution of research projects in the field of physiology and productivity of this animal and also

other things related to this animal (Salehi and Birjandi, 2009). One of the valuable products of this animal is its milk. It is notable that camel milk rather than cow and buffalo milk has less sensitiveness and decays late, for this reason, preservation in 30°C is possible. Average percentage of camel milk compounds is: 86.9% for water, 3.9% for fat, 12.12% for dry matter, 3.5% for protein, 0.66% for ash, 0.32% for calcium and 5.6 mg for vitamin C, 70kcal for energy (in 100g) (Rahanjam and kor, 2009).

METHODOLOGY

Three main trends are observed in the camelid world:

(i) Intensification of the camel production: Camel production is intensified with the development of modern dairy farms, high dairy potential lactating camels (as the

Table 1. Status of camel production and trade in the world.

Year	Continent*			
	Europe	Africa	Asia	World
	Population			
2000	10000	16603147	3781158	20394305
2005	7404	18708387	3574111	22289902
2010	7243	20735087	3938931	24681261
	Import of camel (live animal) per head			
2000	0	61354	25975	87359
2005	0	45456	246653	292109
2010	0	53271	245514	298785
	Import of camel (live animal) per 1000\$			
2000	0	12235	9304	21539
2005	0	9549	35061	44610
2010	0	42177	94544	136721
	Export of camel (live animal) per head			
2000	0	95192	1572	96764
2005	0	26743	254916	281660
2010	0	162089	136387	298476
	Export of camel (live animal) per 1000\$			
2000	0	26740	891	27631
2005	0	5743	33678	39421
2010	0	72858	64826	137684

Source: FAOSTAT (2011)

*There was no data for Americas and Oceania continents.

Al-Majahim breed from Saudi Arabia) and industrial milk processing (pasteurized milk, cheese making modern packaging), or camel feed-lot with intensification of the reproduction process.

(ii) Diversification of the camel production: Camel production is diversified with increasing wider usage of camelids in agriculture activities, carting, leisure (mainly for small camelids), increasing demand of camel milk and meat for dietetic and medicinal purposes.

(iii) Increasing of the distribution area: Increasing of the distribution area in the world is linked to the climatic changes (Faye et al. 2008), diversification of their use, aridification of many parts of the world, and to the increasing demand of the camel products in urban areas.

This study aimed to clarify the performance of production as well as trade of camel population and products in some Middle East countries. Data were collected by FAO statistics (FAO, 2011) which is available online through this organization's formal website for the period of 2000 to 2010.

RESULTS AND DISCUSSION

There are approximately 25 million camels in the world

and the global market for camel products has a potential of US\$10 billion a year based of Food and Agriculture Organization of United Nations (FAO, 2011). Most of the world's camels are located in the tropics and there are significant numbers in sub-Saharan African countries such as Somalia, Ethiopia, Kenya, Sudan and Djibouti. The Arabian camel (dromedary) has one-hump and is generally found in areas with relatively warm winters and hot summers such as Pakistan, India, North Africa, Middle East (ME) and some parts of Australia and Russia. The two-humped Bactrian camel is found in areas subject to intense cold such as Russia, Iran and Mongolia and is believed to be indigenous to Mongolia. This species is raised all over Mongolia (Avery Press, 1995). Although there are many similarities in the livestock production systems of ME countries, there are also important variations. Such variations reflect differences in climate, availability of grazing land and incidence of diseases (Mirzaei and Heidelbach, 2006). Trend of population, production and trade of camels (live and primary products) in the selected countries and the world are shown in Tables 1 to 12 respectively.

Iran has been ranked 8th in terms of camel population in Asia and 20th in the world. The diversity of production

Table 2. Status of camel population in the Middle East countries (Head).

	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Bahrain	920	920	920	920	920	920	920	930	1000	1000	1000
Egypt	141000	134000	127000	135000	135000	120000	148000	83951	107372	137112	110571
Iran	144300	145600	146000	146000	146000	146000	146000	152000	152000	152000	152000
Iraq	9000	8000	10000	7000	7000	30000	51000	51000	58293	58500	59000
Israel	5300	5300	5300	5300	5300	5300	5300	5300	5300	5300	5300
Jordan	5900	5800	6000	6300	6100	5000	5000	8000	8000	8000	13000
Kuwait	3460	4970	4830	8650	4950	5000	5750	5750	5750	5800	5900
Lebanon	450	440	440	440	440	440	440	440	450	450	450
Libya	44000	45000	46000	47000	48000	49000	50000	52000	54000	55000	56000
Oman	118900	120800	117800	120200	116000	117300	119650	122070	124520	127000	129500
Qatar	50814	32829	33064	33723	34398	13753	23210	32400	32400	34000	34000
Saudi Arabia	259483	255296	252663	254557	283911	272700	284133	279338	241893	229871	230000
Syria	13360	12200	12500	15200	20400	23400	26700	27400	27536	32494	50000
Turkey	1350	1000	930	880	808	865	811	1004	1057	970	1041
UAE	219713	232848	245766	258684	270000	341395	359340	378230	398107	400000	412000
Yemen	253000	264000	267000	350000	353211	357011	359000	365000	373000	383533	403000

Source: FAOSTAT (2011).

Table 3. Status of camel meat production in the Middle East countries (tonnes).

	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Bahrain	88	81	85	87	88	86	85	73	86	90	90
Egypt	39650	52000	46000	38800	39000	40000	43000	37370	45250	36830	48000
Iran	1680	1700	1660	1660	1680	1680	1680	1680	1680	1680	1680
Iraq	347	308	788	1318	875	1925	1925	875	1033	1033	1050
Israel	80	80	80	80	80	80	80	80	80	80	180
Jordan	250	250	250	280	280	280	350	300	300	300	320
Kuwait	470	560	676	910	350	210	350	1225	1050	2100	540
Lebanon	na	Na	na	Na	na	na	na	na	Na	na	na
Libya	3700	3707	3800	4000	4300	4700	5000	5000	5000	5234	5375
Oman	6237	6342	6447	6510	6552	6552	6750	6800	6720	6720	7350
Qatar	1210	1030	1045	1070	1090	1067	1100	948	1111	1163	1200

Table 3. Cont'd

Saudi Arabia	39840	39920	40500	41250	41960	41070	39580	41140	41140	41100	42200
Syria	306	270	270	324	360	530	940	780	640	783	900
Turkey	8	9	18	24	16	18	19	11	14	18	18
UAE	13069	13851	14618	15386	17460	16920	21510	24210	23760	29700	29700
Yemen	2768	2896	3008	3120	3152	3184	2277	2368	2433	2482	2551

Source: FAOSTAT (2011)
na: not available in FAO

Table 4. Status of Camel milk production in the Middle East countries (tonnes).

	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Iraq	375	300	425	325	235	1400	2350	2250	2314	2377	2425
Libya	1800	1905	2000	2105	2120	2145	2156	2216	2234	2360	2400
Qatar	13300	9900	10449	10998	10879	4500	4600	4728	4766	4642	4900
Saudi Arabia	89000	89500	89500	90000	100000	95500	100000	97500	84500	80500	97800
UAE	33335	35328	37288	39248	39350	40546	40000	41109	41436	40356	42400
Yemen	12410	13090	13260	17340	17510	17680	17850	18020	18530	19040	19431

Source: FAOSTAT (2011)
There were no available data for the rest of the Middle East countries.

Table 5. Status of camel (live animal) import in the Middle East countries (Head).

	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Bahrain	41	0	0	5	7	13	0	21	9	15	16
Egypt	61354	99651	77284	48867	39711	45456	63791	64371	33379	37540	53271
Kuwait	357	1347	8	65	481	378	3797	3386	3500	8235	5000
Libya	0	0	0	1214	981	0	0	0	0	0	0
Oman	0	0	5327	8114	5072	0	1808	0	0	0	0
Qatar	417	10331	4568	541	8281	8695	16290	13031	55750	29643	111659
Saudi Arabia	25160	10785	20600	20355	36735	232652	103207	80507	76901	92694	108839
Syria	0	0	0	0	0	355	0	0	0	0	0
UAE	0	0	170	0	6388	4560	36542	38619	40000	48201	20000

Source: FAOSTAT, 2011
There were no available data for the rest of the Middle East countries.

Table 6. Status of camel (live animal) import in the Middle East countries (1000\$).

	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Bahrain	0	0	0	3	6	5	0	25	7	14	27
Egypt	12186	26861	20617	10625	7745	9549	16930	26988	13639	15104	42177
Kuwait	305	837	2	9	148	314	2470	4230	4200	3640	4000
Libya	0	0	0	449	643	0	0	0	0	0	0
Oman	0	0	3768	5867	8422	0	2192	0	0	0	0
Qatar	299	6984	1823	218	4240	4801	7630	8170	10207	3209	50565
Saudi Arabia	8700	3650	8500	7050	10620	27573	22082	35387	42974	32110	34952
Syria	0	0	0	0	0	68	0	0	0	0	0
UAE	0	0	43	0	3942	2300	11617	4226	10000	6341	5000

Source: FAOSTAT (2011)

There were no available data for the rest of the Middle East countries

Table 7. Status of camel (live animal) export in the Middle East countries (Head).

	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Bahrain	0	0	0	0	0	11	0	3	59	14	66
Egypt	0	0	22	65	0	845	430	270	1492	0	7736
Kuwait	768	893	2	1500	1500	8022	4732	2340	3000	4601	4711
Oman	0	0	436	4166	5007	146456	45782	3961	532	0	1277
Qatar	13	1223	5	8495	12441	10863	35869	17430	20017	31066	10594
Saudi Arabia	591	7765	3322	20249	4272	41714	21364	47584	45323	50847	84561
UAE	0	5305	6443	8114	8865	47851	40161	21925	30000	30000	35178

Source: FAOSTAT (2011)

There were no available data for the rest of the Middle East countries

and trade in meat and milk in the selected countries is illustrated by the data presented in various dataset of this survey respectively. There is significant global trade in live camels (Foster et al., 2005), while it is hard to obtain accurate information. Table 1 shows that since 2000, global

trade in live camels has oscillated considerably. Some key exporting nations recorded by FAOSTAT between 2000 and 2005 were Qatar, United Arab Emirates (UAE), Oman and Saudi Arabia which are shown in Tables 7 and 8. According to FAOSTAT, the camel milk

production in Asia, Africa and the world were 171620, 183612, 189981 for year 2000, 1335887, 1428907, 2175272 for year 2005, and 1507507, 1612596, 2365323 (tonnes) for 2010 respectively. This trend indicates that a significant enhancement of camel milk production needs to

Table 8. Status of camel (live animal) export in the Middle East countries (1000\$).

	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Bahrain	0	0	0	0	0	21	0	4	91	7	66
Egypt	10	0	4	8	0	147	56	61	86	0	132
Kuwait	466	613	4	700	600	2605	1238	600	900	3427	1951
Oman	0	0	375	6222	3393	13400	13212	4037	1042	0	990
Qatar	10	1789	3	2100	3829	7564	7747	5750	6565	21165	2939
Saudi Arabia	360	2800	1150	6712	1442	5788	5856	10771	15457	27200	42501
UAE	0	4400	4360	5860	11050	4300	6388	6671	7000	7000	16379

Source: FAOSTAT (2011)

There were no available data for the rest of the Middle East countries

Table 9. Status of camel meat import in the Middle East countries (tonnes).

	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Bahrain	0	0	2	10	1	1	0	0	0	0	22
Oman	0	0	5	0	38	0	3	0	0	0	0
Qatar	0	0	0	0	0	309	439	515	509	509	242
Saudi Arabia	0	560	0	813	0	0	618	442	125	209	0

Source: FAOSTAT (2011)

There were no available data for the rest of the Middle East countries

Table 10. Status of camel meat import in the Middle East countries (1000\$).

	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Bahrain	0	0	35	32	8	9	0	0	0	0	23
Oman	0	0	4	0	29	0	2	0	0	0	0
Qatar	0	0	0	0	0	534	998	1104	1319	1319	770
Saudi Arabia	0	675	0	1117	0	0	847	1386	421	966	0

Source: FAOSTAT (2011)

There were no available data for the rest of the Middle East countries

Table 11. Status of camel meat export in the Middle East countries (tonnes).

	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Qatar	0	0	0	0	0	50	0	0	8	8	8
Saudi Arabia	0	0	0	0	1	0	22	30	0	0	0

Source: FAOSTAT (2011)

There were no available data for the rest of the Middle East countries

Table 12. Status of camel meat export in the Middle East countries (1000\$).

	Year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Qatar	0	0	0	0	0	51	0	0	8	8	8
Saudi Arabia	0	0	0	0	7	0	73	84	0	0	0

Source: FAOSTAT (2011)

There were no available data for the rest of the Middle East countries

be considered by policy makers to plan a national roadmap prolifically.

Conclusion

Camels represent 12% domestic herbivorous biomass in African arid countries and 2% in Asia. Despite of the significant camel population, its economic role in Iran has been extensively ignored because of unknown profit abilities of this animal. Camel breeding in Iran is common in a wide part of Central and South-East of Iran where rainfall is around 100 mm/year. The comparative advantage of the camel as a dairy animal over the other species in the same environment is difficult to quantify; however in absolute terms, it is widely recognized that the camel produces more milk for a longer period of time than any other milk animal held under the same condition (Farah, 1996).

In many countries in the Middle East, Asia, and Africa, camels (Arabian and Bactrian) have been commercially exploited for hundreds of years. However, this utilization has been based on farming camels. Although the output, consumption and trade trends presented above need to be interpreted with caution, the underlying message is clear. Production of meat and milk in the study countries over the last 15 years has risen only slightly or has declined. The gap between production and consumption, which was very narrow at the beginning of the period, has widened significantly because of unknown profit abilities of this animal. As a result, there has been a growing tendency to meet demand, particularly for milk, through imports. Thus, understanding the inter-relationships and conflicts between objectives and policies is a critical step towards designing and implementing more effective

incentive systems. It was concluded that the production of camel meat and milk in the Middle East countries especially Iran regrettably received little attention.

REFERENCES

- Avery Press (1995). 'Mongolia Camels', <http://halcyon.com/mongolia/camels.html/>
- Farah Z (1996). Camel milk properties and products (SKAT). Swiss federal institute of Technology ETH Zentrum, LFO, CH-8092 Zurich, pp: 67.
- Faye B, Vias G, Chaibou M (2008). La dynamique des systèmes d'élevage camelin à l'aune des changements climatiques. Le cas du Niger. Actes de l'atelier régional sur l'élevage et le changement climatique en Afrique de l'Ouest : « Impacts des changements climatiques sur les

- interactions élevage et environnement », Niamey (Niger), 11-15 février 2008.
- Food and Agriculture Organization (FAO) (2011). <http://faostat.fao.org/site/339/default.aspx>
- Foster M, Jahan N, Smith P (2005). Emerging Animal and Plant Industries – their value to Australia. Rural Industry Research and Development Corporation (RIRDC), Canberra.
- Mirzaei F, Heidebach O (2006). Production and trade of animal products in selected ECO countries, Agriculture in the Face of Changing Markets, Institutions and Policies: Challenges and Strategies, Jarmila Curtiss, Alfons Balmann, Kirsti D, Kathrin H (eds., 2006), Studies on the Agricultural and Food Sector in Central and Eastern Europe, Vol. 33, Halle (Saale), Germany, IAMO, pp. 283-293.
- Rahanjam SM, Kor A (2009). Examination compounds and properties of camel milk. The regional conference of Camel research priorities, Mashad, Iran, 2009.
- Raji AR (2009). Histological study of mucosal layer of abomasums in camel by LM and SEM, The regional conference of Camel research priorities, Mashad, Iran, 2009.
- Salehi M, Birjandi MR (2009). Consider of Future Plans for Camel Raising and Camel Hair Development in Iran, The regional conference of Camel research priorities, Mashad, Iran, 2009.