International Conference: Camel milk overview in the Mediterranean basin

Overview of Turkish Camel Sector

Atakan Koç (ADU, Türkiye)

El Oued, Algeria, 22nd of November 2022
Overview of Turkish Camel Sector

- In this presentation;
  - Camel population size in Türkiye
  - Camel Wrestling
  - Camel meat production
  - Camel milk production and farm characteristics
  - Camel milk processing
  - Conclusion
Overview of Turkish Camel Sector
(Domestication, Old World camels)

• Camel domestication
  • Dromedary camels in Arabian Sahara 3000-4000 years ago (Fitak et al., 2020).
  • Bactrian camels around Uzbekistan and Western Kazakhstan 5000-6000 years ago (Burger et al., 2019)

• Considered as “ship of desert” and used as “beast of the burden”
  • now being a food provider (Faraz et al., 2021).

• Old World camels,
  • two of them domestic
    • one humped Camelus dromedarius adapted to hot desert (Ihuthia, 2010; Zarrin et al., 2020),
    • two humped Camelus bactrianus) adapted to cold desert (Ihuthia, 2010; Zarrin et al., 2020)
  • one wild (Camelus ferus).

• Hybridisation is related with work ability (Yarkin, 1965)
  • transportation of commercial goods along distance like Spice and Silk Routes (Burger et al., 2019)
Overview of Turkish Camel Sector
(World camel population)

Camel Rearing Countries and Population Sizes (FAO, 2022)

World camel population is **38.7 million** heads
46 countries raised camel

Chad (8.82 m)
Somalia (7.34 m)
Sudan (4.92 m)
Kenya (4.67 m)
Niger (1.86 m)
Ethiopia (1.64 m)
Mauritania (1.51 m)
Mali (1.27 m)
Pakistan (1.10 m)
Overview of Turkish Camel Sector
(World Camel meat & milk production)

Share (%) of camel in world meat and milk production (FAO, 2022)

Camel meat production: 607,284 tones
Camel milk production: 3,149,997 tones
Overview of Turkish Camel Sector
(Turkish camel population)

Changes in the number of camels over years in Turkey from 1928 to 2021 (Batu, 1965; Yarkın, 1965; TÜİK, 2022)

Changes in the number of camels over years in Turkey from 1985 to 2021 (TÜİK, 2022)
Overview of Turkish Camel Sector
(Usage of camel in Türkiye)
Overview of Turkish Camel Sector
(Usage of camel in Türkiye)

• Used for **transportation** in the past,

  • the food, tents, weapons and war machines and all kinds of supplies of the army.

• **agricultural products**
  • in the Mediterranean and Aegean regions,
    • olives from olive groves to oil mills,
    • cotton, figs, grain and tobacco
  • in some other regions were
    • coal, wood, grain and salt
Overview of Turkish Camel Sector (Hybridisation)

- Hybridisation made for a long time
- hybrids are better than the main two species
  - size,
  - bone strength (thickness),
  - muscle development
  - adapt to different environmental conditions and
  - work ability (Yarkın, 1965).

- There are 6 types of hybrids
  - The F1 camels are the most valuable animals in terms of work ability (Yarkın, 1965).
Overview of Turkish Camel Sector

(hybrids)

Source: Yarkan (1965)
Overview of Turkish Camel Sector (hybrids)

A male Tülü camel called Besrek
Overview of Turkish Camel Sector  
(Camel wrestling)

- Camel lost its importance in transportation
  - But, not lost its importance in Türkiye.
  - Camels are bred mainly for **wrestling**
    - for social or entertainment purposes especially in the West part of Türkiye.
Overview of Turkish Camel Sector
(Camel wrestling)

- camel wrestling dates back to BC
  - held in about 100 places during camels’ mating season (November-March)
  - unique to Türkiye
  - due to the competition between nomadic tribesmen and caravanists

(Çalışkan, 2009; Aydın, 2011; Çulha, 2012; Güneş, 2016).
Overview of Turkish Camel Sector
(Camel wrestling)

A miş, a monthly periodical, reported on Germencik camel wrestling postcard dated 1927, the income left to the police department (Çalışkan, 2016).

Mouths of camels tied and have carpets on their backs (Çalışkan, 2016).
### Overview of Turkish Camel Sector (Camel wrestling)

#### 2022-2023 Season Camel Wrestling Schedule in Turkey

<table>
<thead>
<tr>
<th>Tarih</th>
<th>Aydın</th>
<th>İzmir</th>
<th>Muğla</th>
<th>Çanakkale</th>
<th>Balıkesir</th>
<th>Antalya</th>
<th>Manisa</th>
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<td>20.11.2022</td>
<td>Aydın</td>
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<td>Eşime</td>
<td>Havran</td>
<td>Kinik</td>
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<td>Bozdoğan - Söke</td>
<td>Menemen</td>
<td>Bayramiş</td>
<td>Köşkerler</td>
<td>Salihli</td>
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<td>5.03.2023</td>
<td>Koşk</td>
<td>Kampaşa</td>
<td>Ayvaki</td>
<td>Altınova</td>
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<td>Kuyulu - Güllübahçe</td>
<td>Ödemiş</td>
<td>Çanakkale</td>
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<td>Kozak</td>
<td>Çardak</td>
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<td>26.03.2023</td>
<td>Çine Dernek</td>
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</table>
Overview of Turkish Camel Sector
(Camel wrestling)

Distribution of the number of settlements organizing camel wrestling by provinces in Türkiye (Çalışkan, 2016)
Overview of Turkish Camel Sector
(Camel wrestling)

- Camel Wrestling Federation (DEGÜF) organising the wrestling with the municipalitites.
- Refrees, wrestling area comissioner, rope handlers, muzzle tiers, muzzle tie checkers, a spekar and Vets take parts in wrestling.

There are many wrestling styles:
- Makas
- Tek
- Tying (Bağ)
- Kol alma (Leg taking)
- Kol bağlı (Leg tie)
- Çatal bağlı
- Ense verme
- Çirpma
- Çengel
- Kaştırma çengel,
- Somun çengel,
- Karıştırma,
- Sözme,
- Söz kapa

Wrestling camels are trying to tie each other (Çalışkan, 2016)
Overview of Turkish Camel Sector
(Camel wrestling)

A muzzle tier and a muzzle tie checker in charge of a wrestling (İnce, 2017)
Overview of Turkish Camel Sector (Wrestling)

Wrestling camels waiting for their wrestling turn (Photo: A. Koç).
Overview of Turkish Camel Sector
(Camel meat)

- Old or injured camels mainly shipped to a town (Incirliova) in Aydın,
  - are slaughtered and used for camel sausage production,
  - Every year 60-70 camels are slaughtered
  - Depending on the demand, Camel meat is also sold to the consumer.

- Camel sausage
  - registered as a geographical indication for the town of İncirliova in Aydın Province, Turkey, on March 29, 2021 (Turkish Patent and Trademark Office, Industrial Property Law numbered 6769).
The number of farms producing camel milk in Turkey is limited.

- Camels are not registered in Turkey.
- No record keeping

Camel milk

- Sold to the consumers as fresh or frozen
- or given free.
- is believed to cure various diseases
- such as cancer, diabetes, autism, asthma, bronchitis, jaundice and so on.
Overview of Turkish Camel Sector
(Camel milk)
Overview of Turkish Camel Sector
(Camel milk)

• Characteristics of the farms producing camel milk in Turkey
  
  • i. Dromedary cows *inseminated naturally* with Bactrian bull,
      • except in South-East region (with Dromedary bull),
  
  • ii. *calves*
      • grown naturally,
          • used as pre-stimulator of cow before milking and
          • being allowed to suckle residue milk
          • weaned at 12-18 mo of age.
  
  • *Male calves raised for wrestling purposes*
      • or sold at a high price at a young age
  
  • female calves grown for milk production
      • by mating with Bactrian male or
      • sold to be used for touristic purposes.

Photo: A.Koç-Kaya B. Camel Farm
Overview of Turkish Camel Sector (Camel milk)

• Characteristics of the farms producing camel milk in Turkey
  
  • iii. **machine milking** is applied in farms in the West  
    • hand-milking in the South and South-East regions.

  • iv. **Milk**  
    • stored in 0.5 L or 0.25 L plastic bottles,  
    • marketed directly to the consumer as frozen or fresh,  
    • by phone, online or directly from the farm.  
    • there is no measurement or evaluation regarding the quality of milk  
    • not any legal regulations available regarding the marketing of camel milk
Overview of Turkish Camel Sector (Camel milk)

- Characteristics of the farms producing camel milk in Turkey

  - v. feeding is similar to intensive feeding of dairy cattle,
    - As forage, dry alfalfa hay, meadow grass and straw
    - in addition to concentrate prepared by dairy cows

  - vi. Housed in shelters,
    - since the regions are generally temperate
    - not very cold regions.
    - Some farmers keep their nonlactating and young camels in the field for grazing
Overview of Turkish Camel Sector (Milk)

Kaya Brothers Camel Farm’s camels grazing on the field, Yazıldere/İncirliova/Aydın/Türkiye.
### Overview of Turkish Camel Sector

**CM producing farms**

<table>
<thead>
<tr>
<th>Farms</th>
<th>No. cows</th>
<th>Lac. cows</th>
<th>Selling milk</th>
<th>Milking</th>
<th>Other activities</th>
<th>Milk Production</th>
<th>Production System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaya</td>
<td>20</td>
<td>7</td>
<td>Sells</td>
<td>by machine</td>
<td>Jeweller</td>
<td>Whole year</td>
<td>Intensive feeding, traditional rearing</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>2x in parlor</strong></td>
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<tr>
<td>Ertürk</td>
<td>2-3</td>
<td>-</td>
<td>Sells</td>
<td>by machine</td>
<td>Academician</td>
<td>?</td>
<td>Intensive feeding, traditional rearing</td>
</tr>
<tr>
<td>Durmaz</td>
<td>9</td>
<td>3</td>
<td>Sells</td>
<td>by machine</td>
<td>Tourism</td>
<td>Whole year</td>
<td>Intensive feeding, traditional rearing</td>
</tr>
<tr>
<td>Akça</td>
<td>8-10</td>
<td>4</td>
<td>Gives free</td>
<td>by hand</td>
<td>Tourism</td>
<td>Demanded</td>
<td>Intensive feeding, traditional rearing</td>
</tr>
<tr>
<td>Alanya Farms</td>
<td>20-30</td>
<td>8</td>
<td>Sells and Give free</td>
<td>by hand</td>
<td>Tourism</td>
<td>Demanded</td>
<td>Intensive feeding, traditional rearing</td>
</tr>
<tr>
<td>Tanır</td>
<td>8</td>
<td>4</td>
<td>Gives free</td>
<td>by hand</td>
<td>Cattle, sheep farmer</td>
<td>Demanded</td>
<td>Intensive feeding, traditional rearing</td>
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<td>Arpacık</td>
<td>4</td>
<td>3</td>
<td>Sells</td>
<td>by hand <strong>2x</strong></td>
<td>-</td>
<td>Whole year</td>
<td>Intensive feeding, traditional rearing</td>
</tr>
</tbody>
</table>

Note: The table includes additional information on the production system of each farm, with options for intensive feeding and traditional rearing.
Overview of Turkish Camel Sector
(Milk Processing)

Camel milk produced by farm

First time processed by vacik

• all necessary permits for the products
  • Pasteurised CM
  • Camel cheese
  • Camel whey
• taken from the Turkish Ministry of Agriculture and Forestry in 2021 and being marketed locally in some local shopes in Aydın/Türkiye.
Overview of Turkish Camel Sector
(Milk Processing)
Overview of Turkish Camel Sector (Milk Processing)
Most of the camels in Turkey are hybrids (Bacterian x Dromedary),
Prefered in the past for work ability,
Now used for wrestling.

Old camels slaughtered
  for camel sausage production.

There are a few farms producing and selling camel milk.
  these farms do not use their full capacity,
  Due to marketing difficulties
    high price of milk,
    difficulties to process camel milk into the products
    low demand.
Overview of Turkish Camel Sector
(Conclusion)

• In order to increase the demand for camel milk:
  
  • i) Price of raw milk need to be decreased by increasing the size of the farms.
  
  • ii) Promotional activities can be organized for the benefits of camel milk and its products
    
    • Mixing camel milk with other farm animals milk and then processed.
  
  • iii) the **therapeutic effects** of camel milk, if any, should be proved.
Overview of Turkish Camel Sector

(Conclusion)

• With **Camel Mılk** Project,

  • a new *era* was begun
    • camel milk has been processed into various products by **Ovacık**

• This development will cause camel breeding to shift to food source breeding,
  • besides recreational (camel wrestling, tourism) purposes.
It is expected that
- the size of existing farms will increase,
- new dairy camel farms will also be established.

This cause:
- an increase in demand for female camels with high yield,
  - The only option is importing camels from abroad.
İNCİRLİOVA ARENASINDA YILIN İLK DEVE GÜREŞİ