



CAMEL MILK PRODUCTION SYSTEM IN TURKEY

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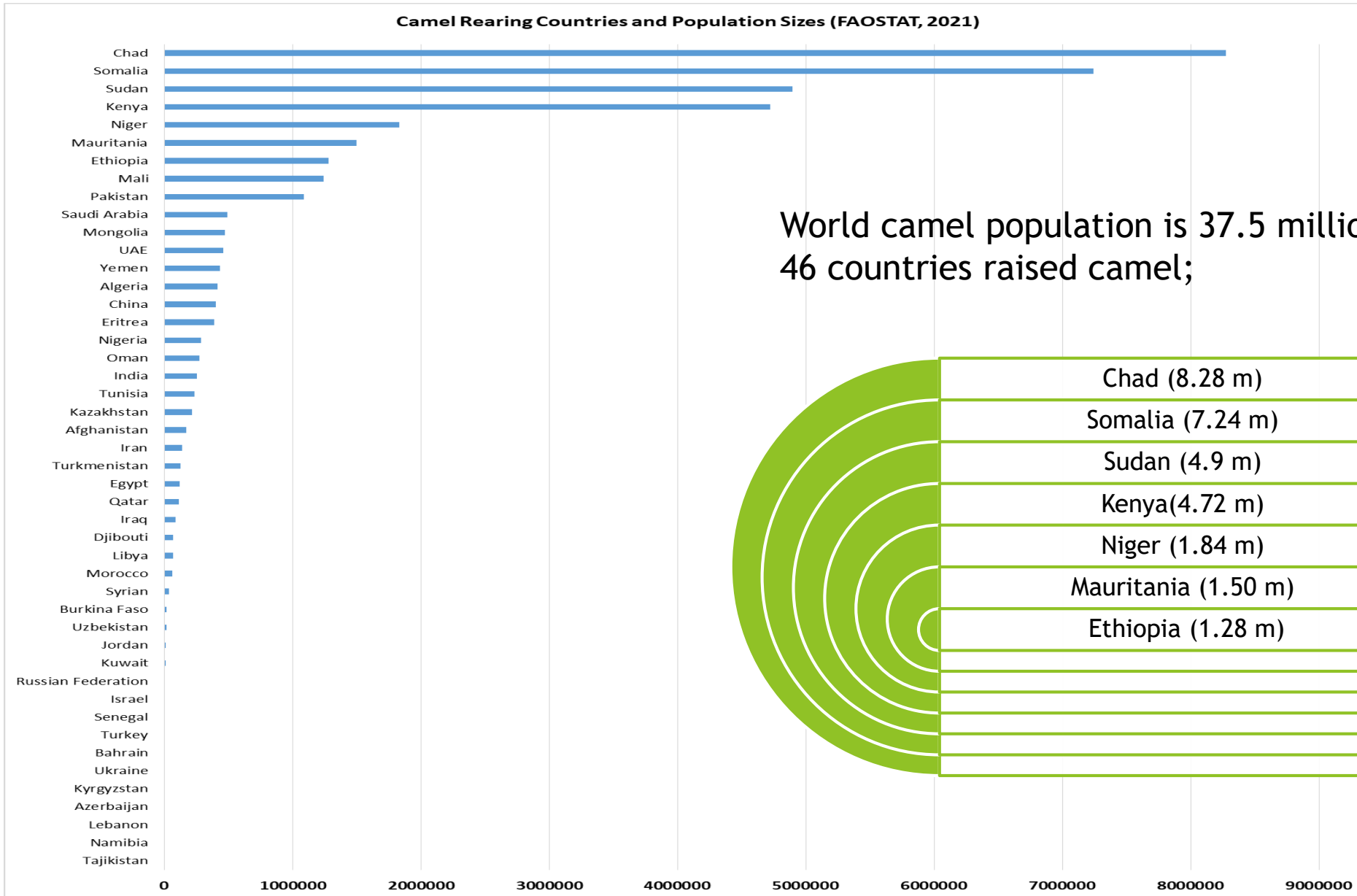
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Introduction-1

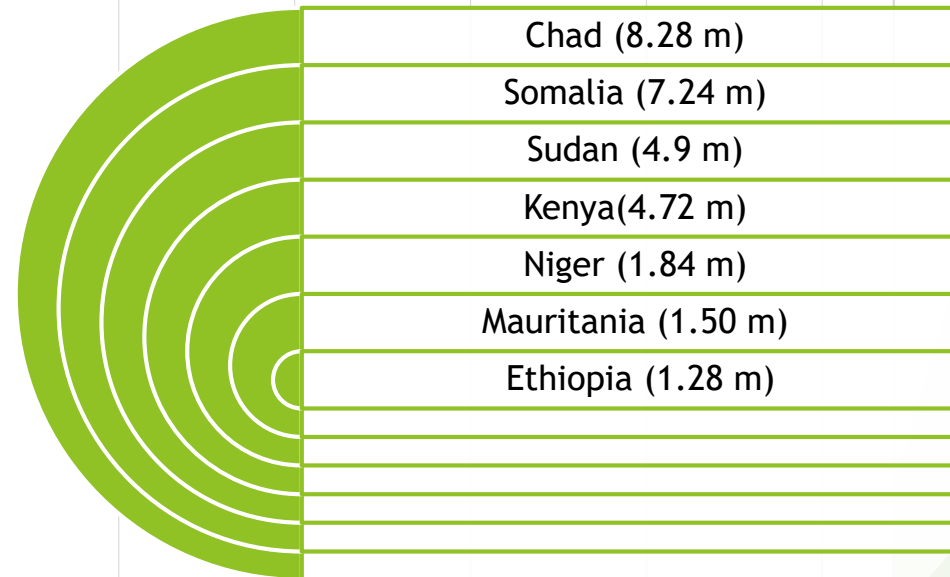
- ▶ Camel,
 - ▶ First domesticated in Arabian Sahara
 - ▶ about 5000-6000 years ago (Şenel, 2009; Çalışkan, 2010).
 - ▶ shifted being «ship of desert» and «beast of the burden»
 - ▶ now to be a food provider (Faraz et al., 2021).
- ▶ Three recognized species of Old World camels worldwide (Burger et al., 2019),
 - ▶ 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*).
- ▶ Hybrids used for transportation in Spice and Silk routes (Burger et al., 2019)



Introduction-2

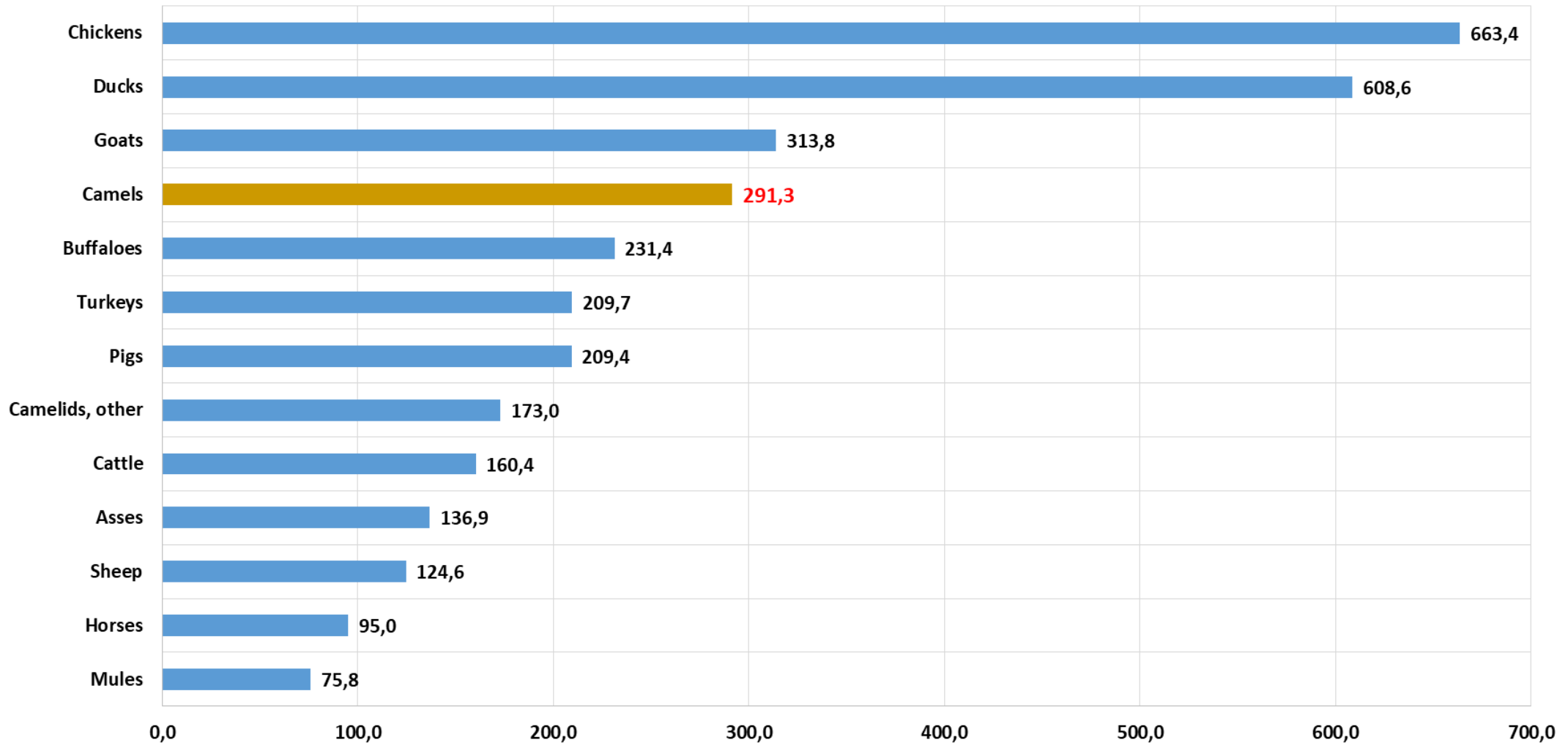


World camel population is 37.5 million heads (FAO, 2021)
46 countries raised camel;

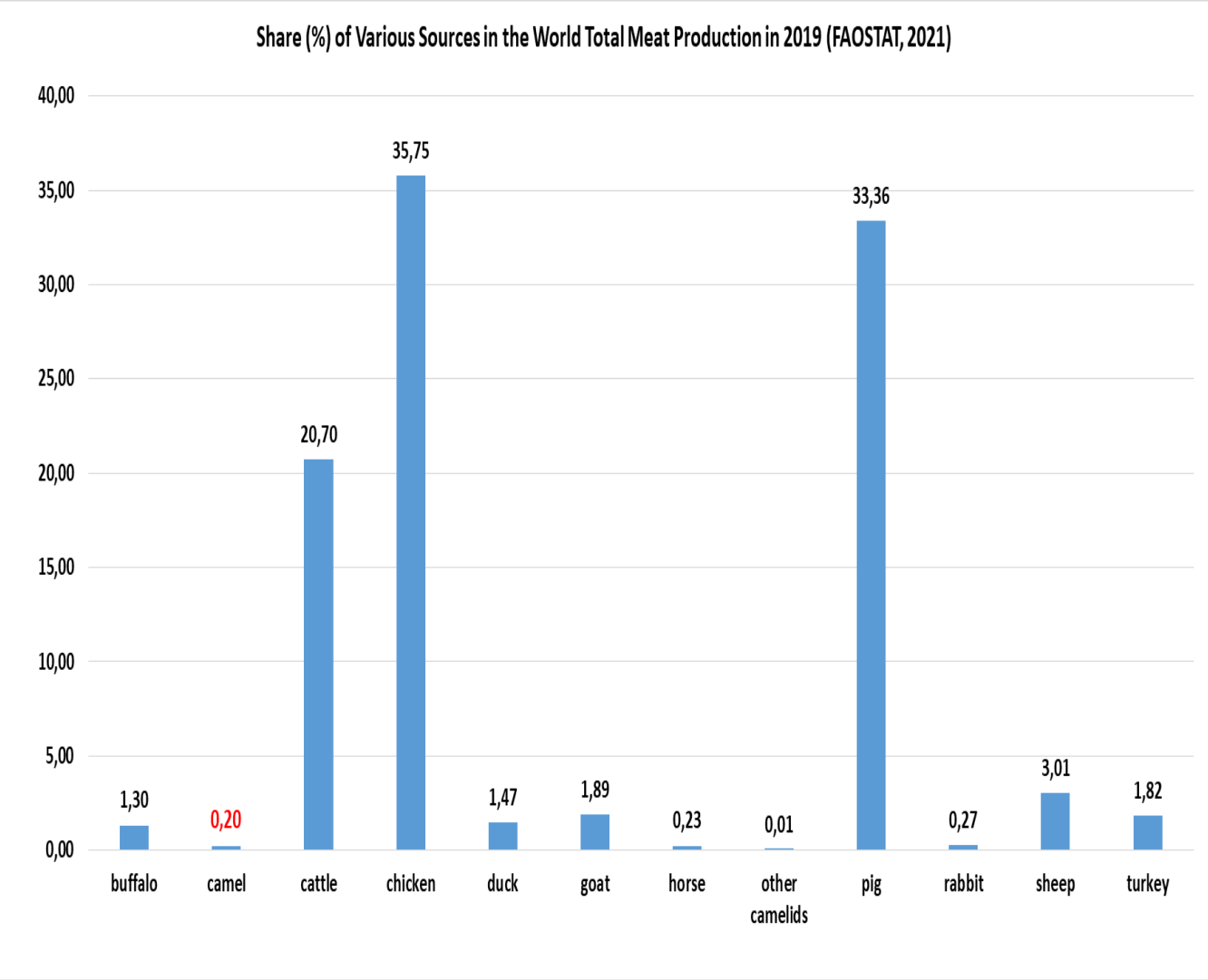
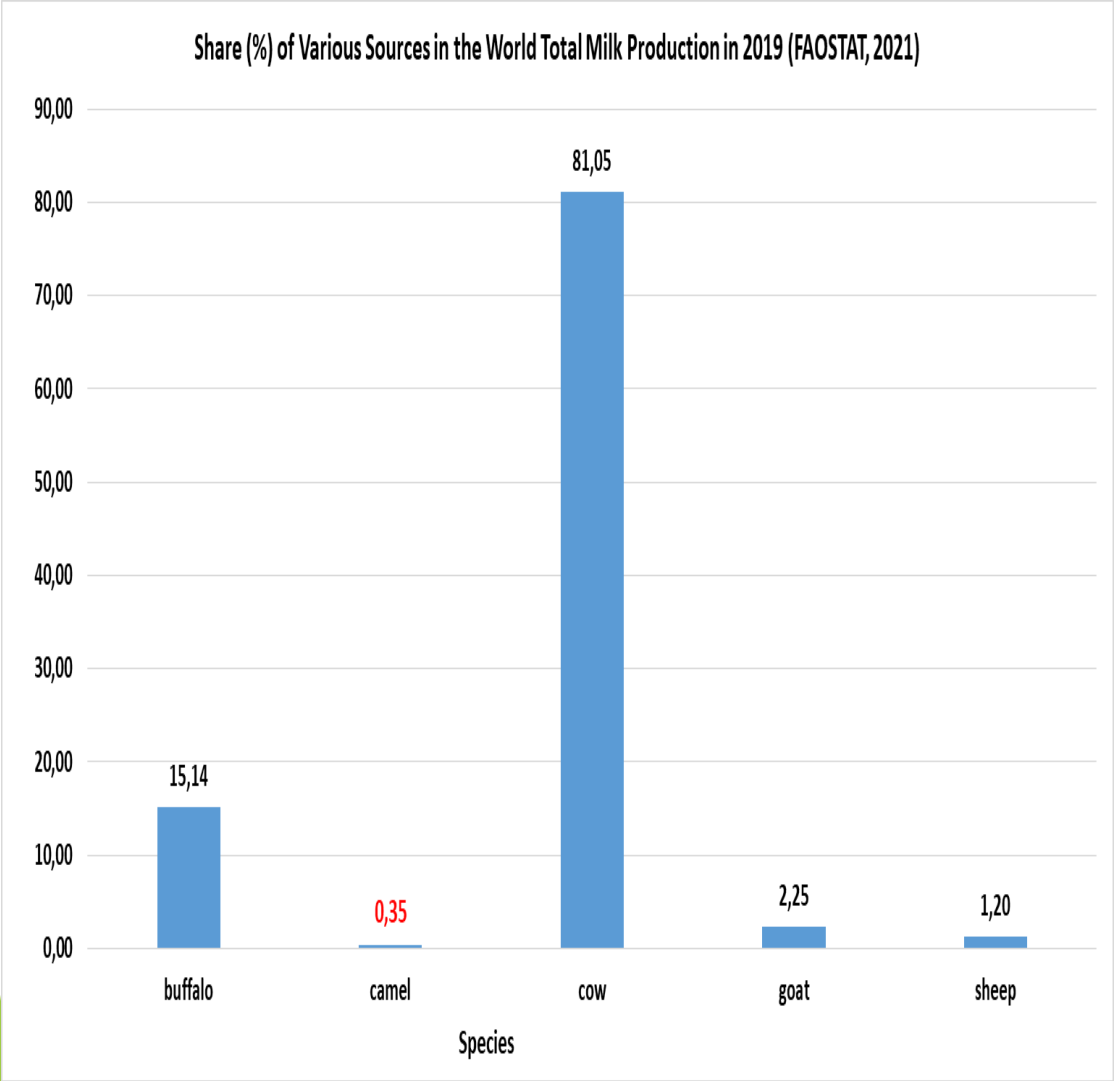


Introduction-3

Changes of population sizes in different animal species in the world from 1961 to 2019
(values in 1961 accepted as 100; FAOSTAT, 2021)

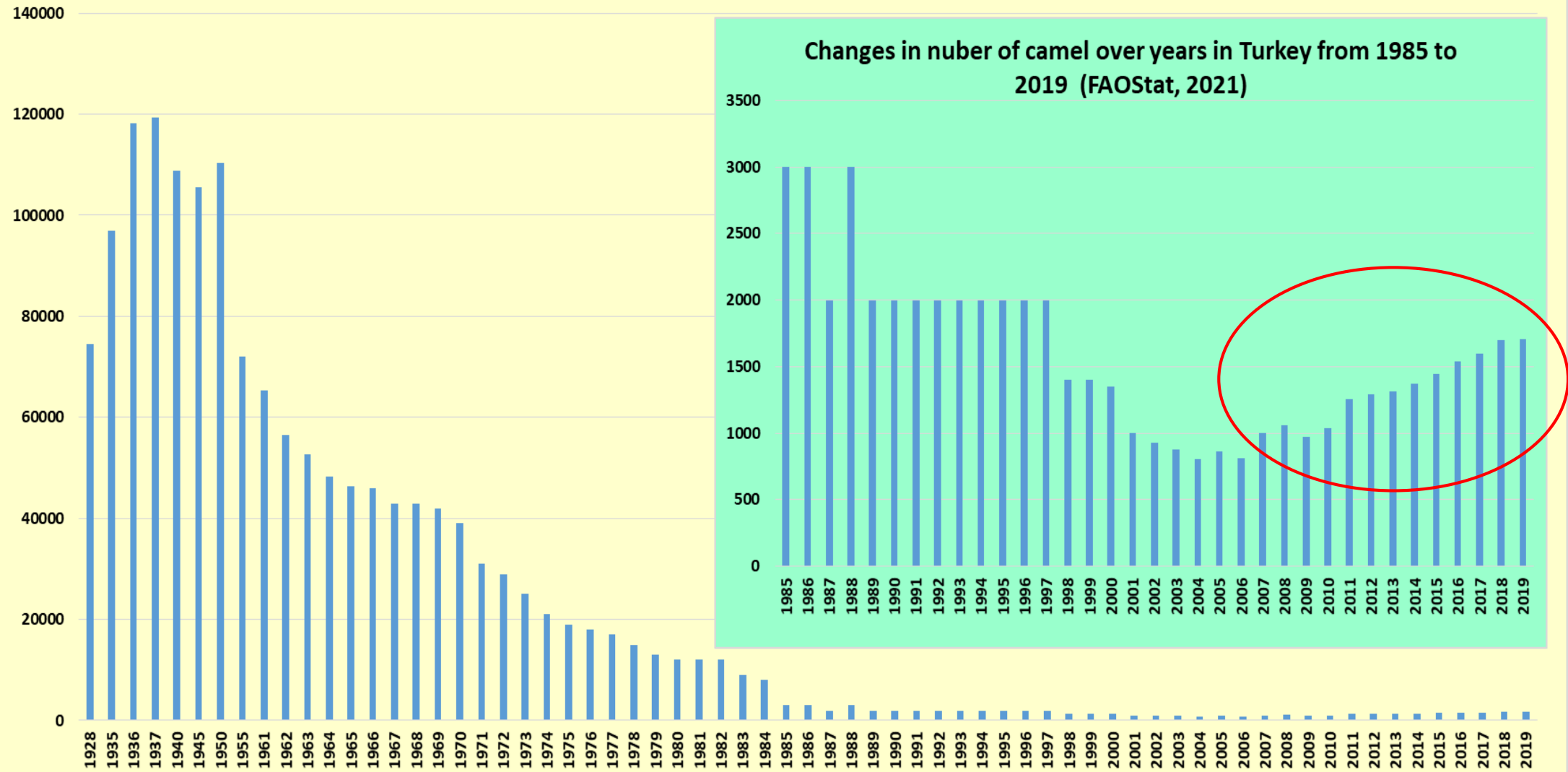


Introduction-3



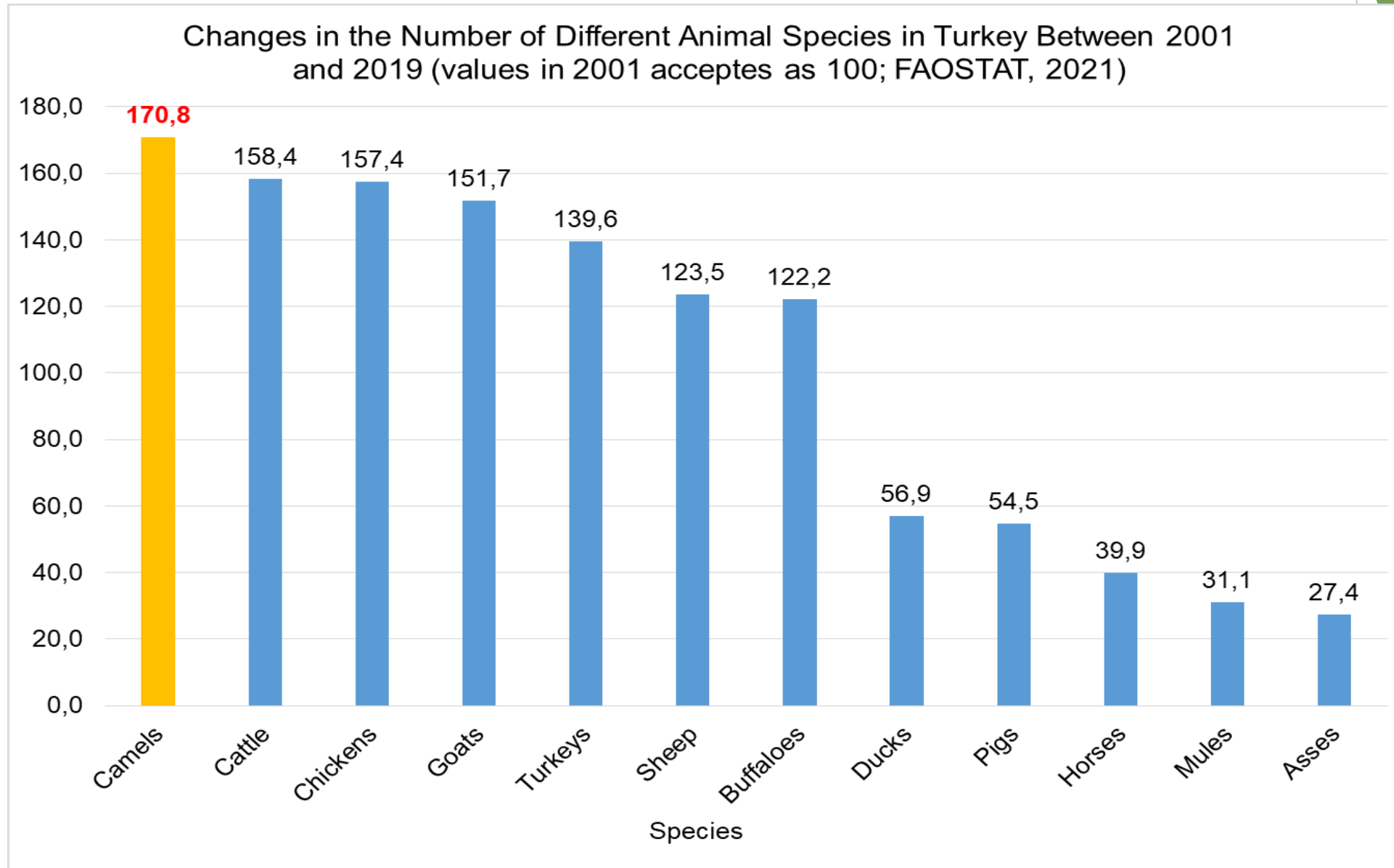
Camels in Turkey

Changes in number of camels over years in Turkey from 1928 to 2019 (FAOStat 2021)



Source: Batu, 1965; Yarkin, 1965; FAOstat, 2021.

Camels in Turkey



Camels in Turkey

- ▶ Used for **transportation** in the past,
 - ▶ the food, tents, weapons and war machines and all kinds of supplies of the **army**.
 - ▶ during the migration period of the nomad Turks (Yörük),
 - ▶ all their goods were carried by camels.
 - ▶ **agricultural products** carried by camels.
 - ▶ in the Mediterranean and Aegean regions,
 - ▶ olives from olive groves to oil mills,
 - ▶ cotton, grain and tobacco
 - ▶ in some other regions were
 - ▶ coal, wood, grain and salt



Camels in Turkey

- ▶ Different **hybridizations** were made
 - ▶ **Tülü** (Bactrian ♂ x Dromedary ♀ F1),
 - ▶ Tavsi (Tülü ♀ x Bactrian ♂),
 - ▶ Teke (Tülü ♂ x Dromedary ♀),
 - ▶ Kerteles (Teke ♀ x Bactrian ♂),
 - ▶ Yeğen (Tülü ♀ x Dromedary ♂),
 - ▶ Kükürdi (Tülü ♂ x Tülü ♀)



Camels in Turkey

- ▶ During the mating season,
 - ▶ male *Tülüs* try to dominate each other,
 - ▶ camel wrestling is done in winter.
- ▶ **camel wrestling**
 - ▶ unique to Turkey,
 - ▶ started about two centuries ago
 - ▶ due to the competition between nomadic tribesmen and caravanists (Çalışkan, 2009; Aydın, 2011; Çulha, 2012; Güneş, 2016),.
 - ▶ held in more than 100 places in a season
 - ▶ from November to April on Sundays.



Camels in Turkey

- ▶ Old camels mainly shipped to the Incirliova district of Aydın,
 - ▶ are slaughtered and used for camel sausage production.
- ▶ **Camel sausage**
 - ▶ registered as a **geographical indication** for the town of Incirliova in Aydın Province, Turkey, on March 29, 2021 (Turkish Patent and Trademark Office, Industrial Property Law numbered 6769).



Camel Milk Production in Turkey

- ▶ The number of farms producing camel milk in Turkey is limited.
 - ▶ Camels are not registered in Turkey.
 - ▶ No record keeping
- ▶ Camel cows mated naturally and
- ▶ Calf
 - ▶ reared traditionally,
 - ▶ Weaned at 10-18 m.
- ▶ Camel milk
 - ▶ produced mainly from dromedary camels.
 - ▶ Sold or given free to the consumer as fresh or frozen.
 - ▶ Price is high (70-120 TL or 6-11.5 €)
 - ▶ is believed to cure various diseases
 - ▶ such as cancer, diabetes, autism, asthma, bronchitis, jaundice and so on.



Camel Milk Producing Farms in Turkey



Camel Milk Producing Farms in Turkey

▶ Characteristics of the farms producing camel milk in Turkey

- ▶ i. Dromedary cows inseminated naturally with Bactrian bull, except in South-East region,
- ▶ ii. calves
 - ▶ grown naturally,
 - ▶ suckle their mothers throughout the lactation period,
 - ▶ used as pre-stimulator of cow before milking and
 - ▶ being allowed to suckle residue milk
- ▶ iii. machine milking is applied in farms in the West
 - ▶ hand-milking in the South and South-East regions.
- ▶ iv. Milk is frozen and stored in 0.5 L or 0.25 L plastic bottles,
- ▶ v. milk is marketed directly to the consumer as frozen or fresh,
 - ▶ by phone, online or directly from the farm.



Camel Milk Producing Farms in Turkey

- ▶ **Characteristics of the farms producing camel milk in Turkey-** continued
 - ▶ vi. feeding lactating cows similar to intensive feeding of dairy cattle,
 - ▶ dry alfalfa hay or meadow grass and straw in addition to concentrate prepared by dairy cows
 - ▶ vii. Except in South-east region, almost all calves born are *Tülü*
 - ▶ raised for wrestling purposes or sold at a high price at a young age
 - ▶ viii. female *Tülü* calves can be used in production by mating with Bactrian male or
 - ▶ sold to be used for touristic purposes.
 - ▶ ix. Housed in shelters, since the regions are generally temperate, not very cold regions.
 - ▶ x. there is no measurement or evaluation regarding the quality of milk
- ▶ not any legal regulations available regarding the marketing of camel milk

Camel Milk Producing Farms in Turkey

Farms	No. cows	Lac. cows	Selling milk	Milking	Other activities	Milk Production	Production System
Kaya	20	6	Sells	by machine 2x in parlor	Jeweller	Whole year	Intensive feeding, traditional rearing
Ertürk	3 (1)	-	Sells	by machine in barn	Academician	?	Intensive feeding, traditional rearing
Durmaz	9	3	Sells	by machine in barn	Tourism	Whole year	Intensive feeding, traditional rearing
Akça	10	4	Gives free	by hand in barn	Tourism	Demanded	Intensive feeding, traditional rearing
Alanya Farms	20-30	6	Sell and Give free	by hand in barn	Tourism	Demanded	Intensive feeding, traditional rearing
Tanır	8	4	Gives free	by hand in barn	Cattle, sheep farmer	Demanded	Intensive feeding, traditional rearing
Arpacık	4	3	Sells	by hand 2x in barn	-	Whole year	Intensive feeding, traditional rearing



Photo: A.Koç-Kaya B. Camel Farm



Photo: A.Koç-Kaya B. Camel Farm

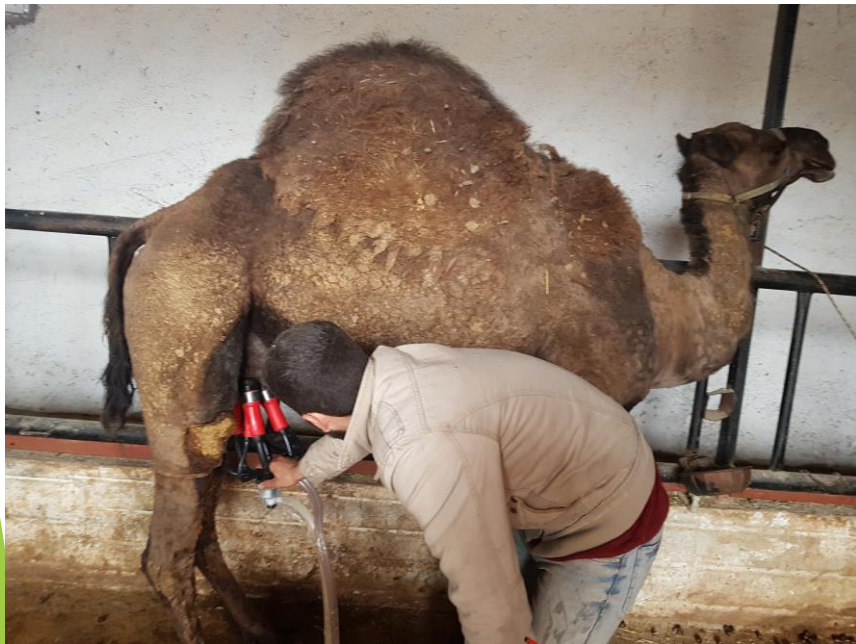


Photo: A.Koç-Durmaz Camel Farm



Photo: A.Koç-Akça Camel Farm



Photo: A.Koç-Tanır Camel Farm



Photo: A.Koç-Alanya Camel Farms



Photo: A.Koç-Arpaçık Camel Farm



Camel Milk Processing in Turkey

- ▶ within the scope of **Camel Milk** Project ;
- ▶ Camel milk produced in  farm was processed by 
 - ▶ into pasteurized camel milk,
 - ▶ camel cheese (tulum and halumi),
 - ▶ camel whey,
 - ▶ camel yoğurt.
- ▶ all necessary permits for these products been taken from the Turkish Ministry of Agriculture and Forestry.
- ▶  will market these products locally very soon.



Conclusion

- ▶ There are a few camel farms producing and selling camel milk
- ▶ These farms cannot use their full capacity,
 - ▶ Due to marketin difficulties
 - ▶ high price of it,
 - ▶ difficulties to process camel milk into the products
 - ▶ low demand.
- ▶ With **Camel Milk** Project,
 - ▶ a new era has begun
 - ▶ camel milk has been processed into various products.
- ▶ This will cause camel breeding to shift to food source breeding,
 - ▶ besides recreational (camel wrestling, tourism) purposes.

Conclusion

- ▶ Due to processing camel milk into dairy products,
 - ▶ It is expected that
 - ▶ the size of existing farms will increase,
 - ▶ require supports to renovate or increase the size of the farm.
 - ▶ new dairy camel farms will also be established.
 - ▶ This cause:
 - ▶ an increase in demand for **female camels** with high yield,
 - ▶ The only option is **import camels** from abroad.
- ▶ For camel milk products with high prices:
 - ▶ i) Promotional activities can be organized for the benefits of camel milk and its products.
 - ▶ ii) It may also be possible to mix with other farm animals milk and then processed.



Thank you very much for your patience.....

