



المركز الوطني للبحوث الزراعية
National Agricultural Research Center

**Camel Herd Management
with special reference to their most
dangerous diseases**

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- **The importance of camels**
- **Camel classification**
- **Anatomical information**
- **Ability to endure hunger and thirst**
- **Physiology of Reproduction**
- **Milk production**
- **Dangerous diseases**



Justifications for caring about camels

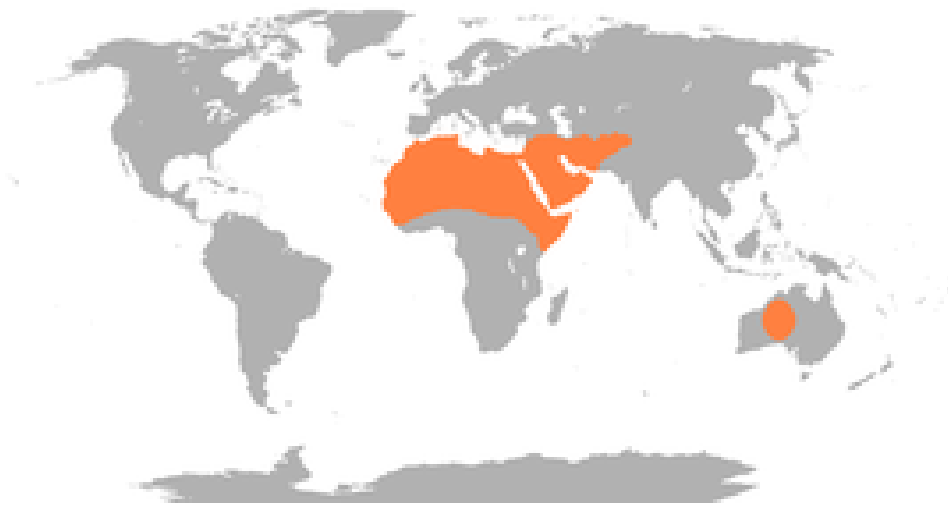
- **Religious Heritage**
- **Social Heritage**
- **Food Security**
- **Environment and Climate Change
“Adaptation”**
- **Special Characteristics of Camel Milk**
- **“The animal of the future” Global trend**



Camel classification

- ***Camelidae***
- ***Genus Camelus***
 - **Dromedary / Arabian camel (*Camelus dromedarius*)**

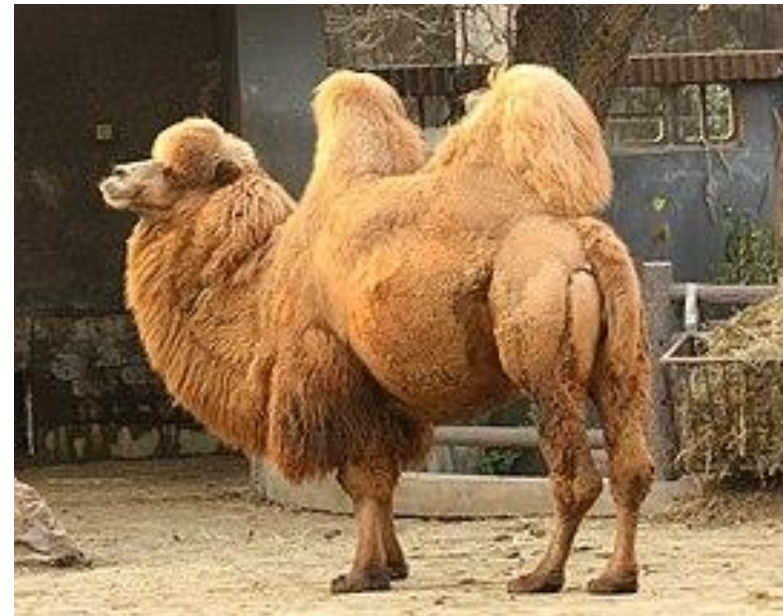
Domesticated, the Middle East, Sahara Desert, and South Asia, introduced to Australia, 94% of population



Camel classification

- Bactrian camel (*Camelus bactrianus*)

Domesticated; Central Asia, including the historical region of Bactria, 6% of population



Camel classification

- **Wild Bactrian camel (*Camelus ferus*)**

Undomesticated, Remote areas of northwest China and Mongolia, Critically Endangered (CE)



Camel classification

- **Camelidae**
- **Lamini**
- **Genus : Llama - alpaca - guanaco - vicuna**



Division of camels among the Arabs

- **Color, origin, lineage, use.....**
- **The most famous and common: The color**

A. Almgateer (white)

- 1.Woddeh** (Pure white)
- 2.Shogeh** (White with blonde)

B. Almjaheem (others)

- 1.Black**
- 2.Blue** (Grey with black)
- 3.Red**
- 4.Yellow** (Beige with black)



Woddeh



Shogeh



Black



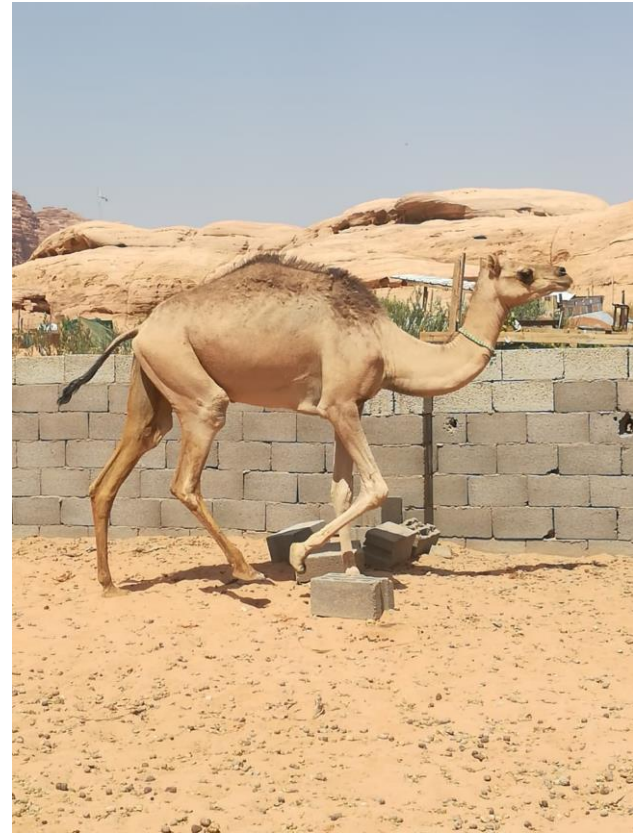
Blue



Red



Yellow



Anatomical information

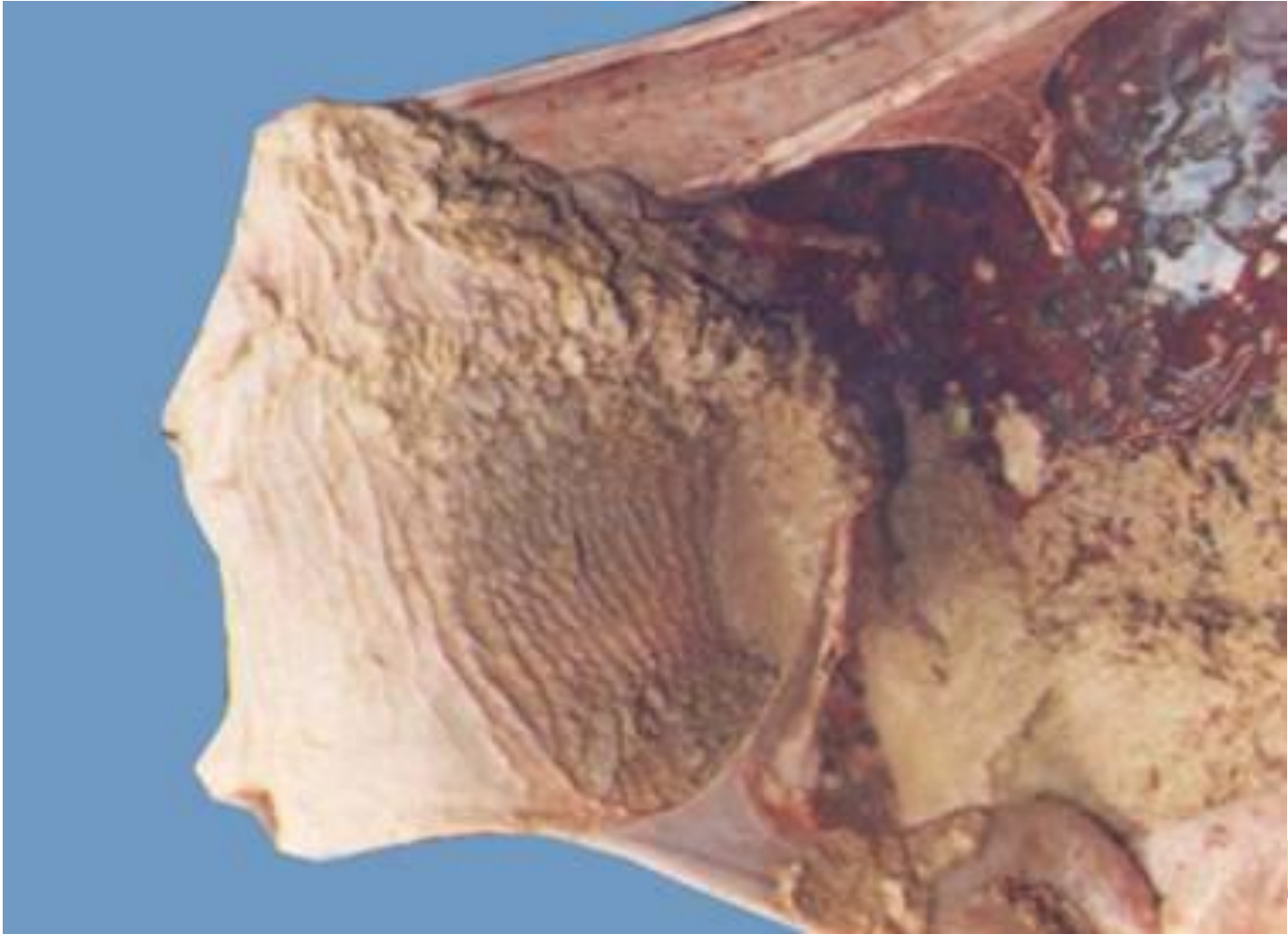
- Scent gland (blue gland).



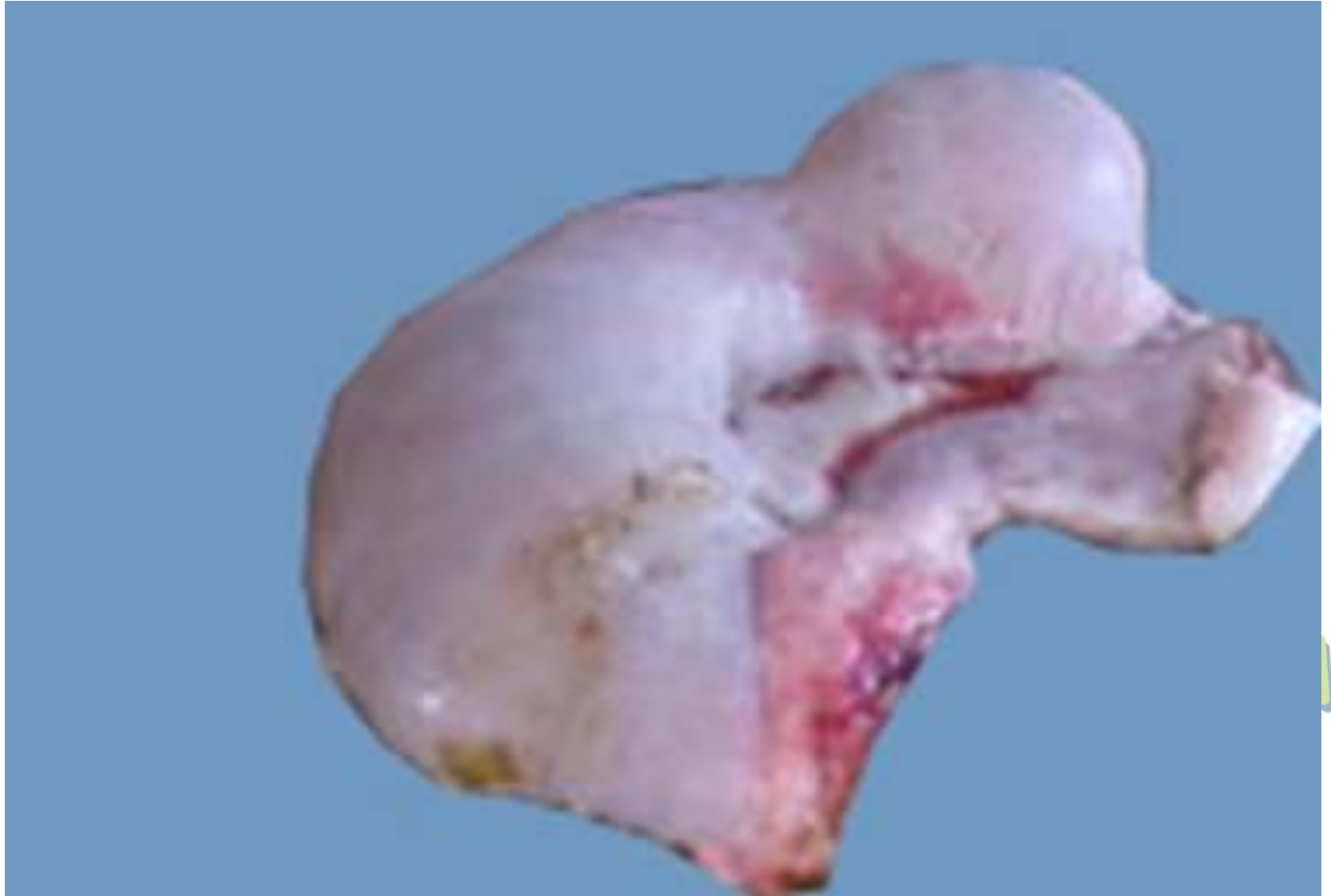
الكرش Rumen



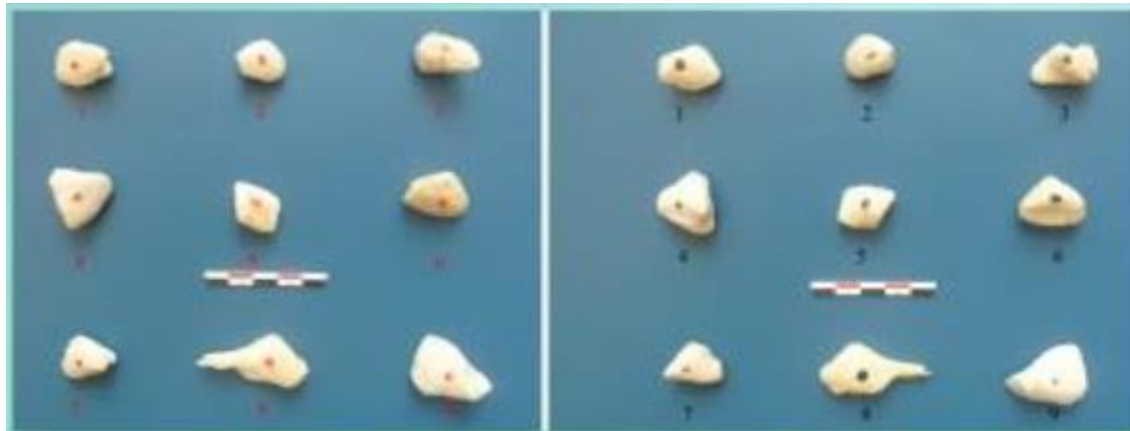
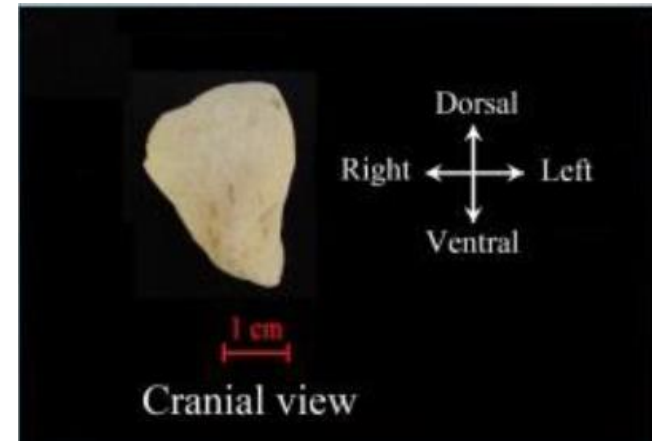
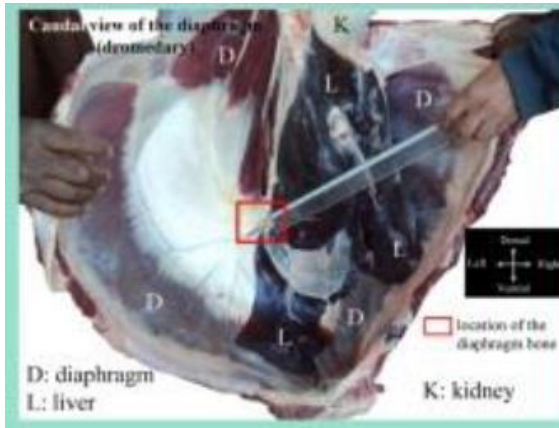
Riticulum الشبكية



Omasum and abomasum الورقية والأنفحة



Diaphragm bone



Ability to endure hunger and thirst

Hunger endurance:

- Its food consists of cellulose fibres, which are slow to digest
- The ability to convert nitrogenous waste into proteins, unlike other ruminants that excrete these wastes in the urine through the kidneys.
- The ability to eat spiny and salt plants



Thirst endurance

- It can endure thirst in the summer for two weeks or a little more
- In winter from two to four months
- It can withstand the loss of 30% of body fluids.
- **How can this animal rationalize its use of water? And where does it store it?**



Thirst endurance

- 1- Fat, especially the hump (1.07 ml of water from the oxidation of 1 gram of fat)**
- 2- Constant wetness in the mouth (rumination - urea)**
- 3- The ability of the rumen to store more than 120 liters of water**
- 4- Thermal balance and sweating**
- 5- The ability to retain glucose in the blood**
- 6- Kidney capacity**
- 7- Camels do not pant or breathe through their mouths**
- 8- Red blood cells**



Weight estimation

- The length of the abdominal circumference is taken passing through the middle of the top of the hump, then the camel's weight is estimated according to the following equation:

Camel weight in kilograms = (L x W) – (290.6)

- (L): Length of the belly circumference passing from the middle of the top of the hump in centimeters
 - (W): Weight factor equal to (3.06)
- In general, the weight of a camel with one hump is estimated at (300-600 kg), camels with two humps between (600-800 kg) , and in some large species the weight exceeds that.



Physiology of Reproduction

- **Sexual maturity**
 - In most camel breeding systems, reproduction does not occur until the age of 4 years, which means that the lifespan of the camel after its first birth is 5 years or more.
 - Influencing factors (nutrition, breed, birth weight, etc.)




Physiology of Reproduction

- **Seasonality**

- The one-humped camel is a seasonal multi-estrous animal
- (October.....April)

- **Estrous cycle and ovulation**

- The definition of the estrous cycle in camels is very complex, as there are many differences in the duration of this cycle.
 - Ovulation occurs **24-48** hours after Mating.
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Physiology of Reproduction

- **In the absence of mating**, what happens is a succession of ovarian follicles.

- **When mating and ovulation occur**

1- Pregnancy

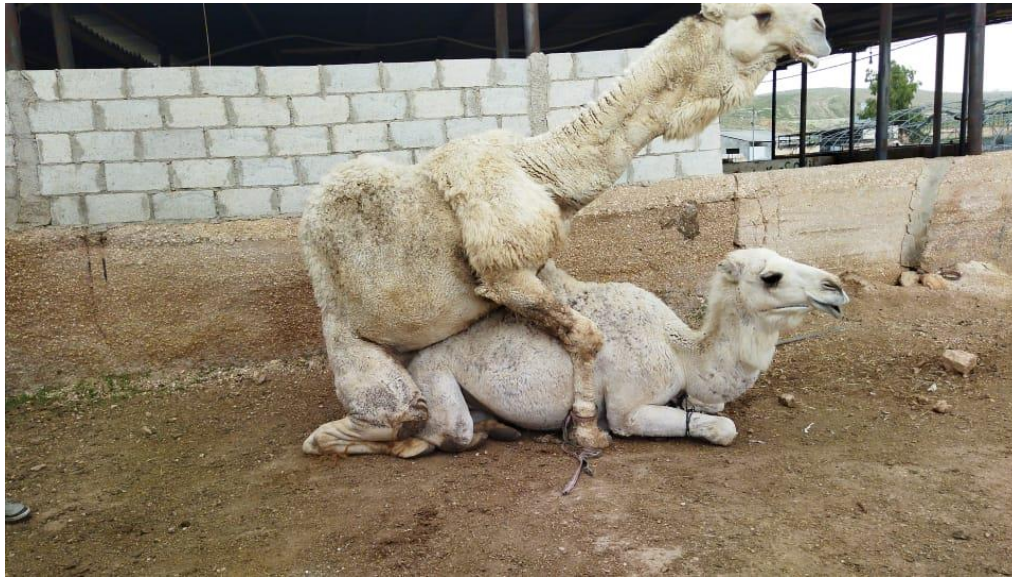
2- No pregnancy - Corpus luteum (10 days) -
New ovarian follicles (2 mm/day)



Physiology of Reproduction

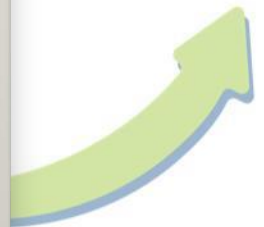
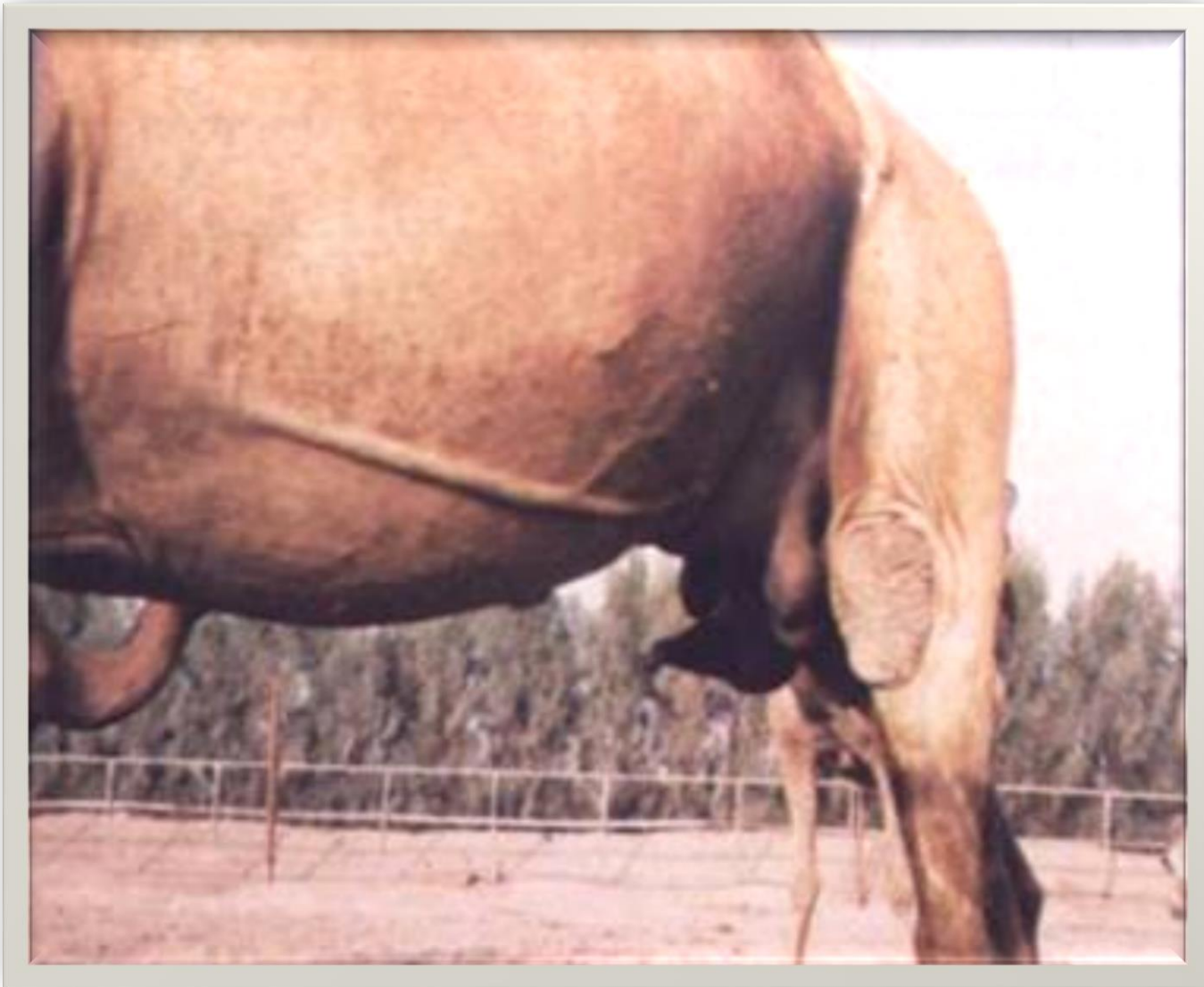
- **Pregnancy duration 12-13 months**
- **pregnancy signs**
- **Altshweel (tail raising)**
- **Back legs spacing**
- **Non-acceptance of male**







Milk production



Milk production

- **2-6 liters in traditional breeding.**
- **The milking season 8-18 months**
- **It is preferable to milk it 4 times a day**
- **The color is white and the taste tends to be sweet**



Camel milk components

References

goats	sheep	Cows	7	6	5	4	3	2	1	Components
87.8	80.8	87.2	-	-	88.5	85.6	-	-	87.6	water
0.55	0.89	0.65	-	-	0.7	0.9	0.76	-	0.77	Ashes
3.2	6.5	3.5	2.7	3.82	2.0	4.5	3.7	-	3.9	Protein
3.8	6.8	3.8	3.9	5.4	4.1	5.5	4.2	2.9	2.9	Fat
4.5	4.9	4.8	-	-	4.7	3.4	4.1	4.0	5.4	Lactose



Boil or pasteurize camel milk



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National Agricultural Research Center
مديرية بحوث الثروة الحيوانية

حليب إبل مبستر
Camel Milk



يحفظ في درجة حرارة 4°C
صالحة لمدة أسبوع من تاريخ الإنتاج
تاريخ الإنتاج : / /





Sports

- **Advantages and benefits of camel racing:**

1- Interest in camel breeding in general and preserving the Arab heritage.

2- Growth of trade relations with neighboring countries

3- Racing has become a source of income for many sectors of the people, especially camel traders.

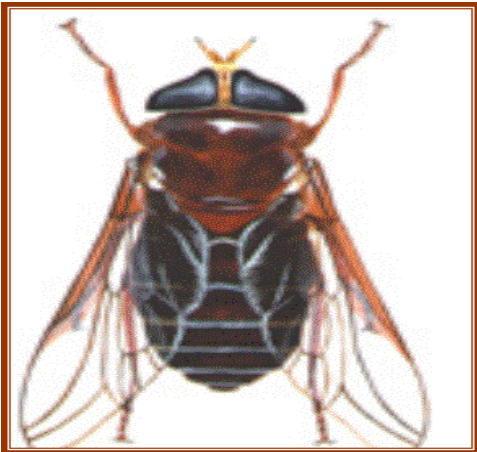
4- Encouraging Bedouins to settle down.

5- Increase in the value of camels that win the race and thus their prices

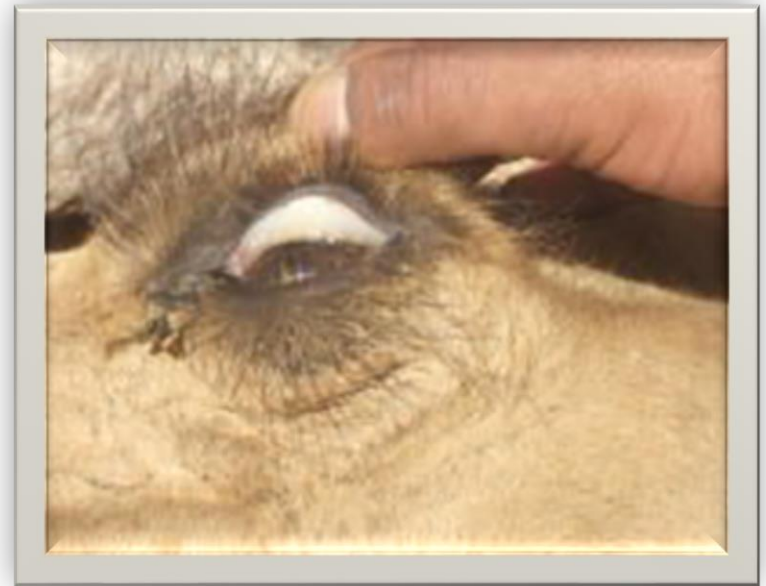
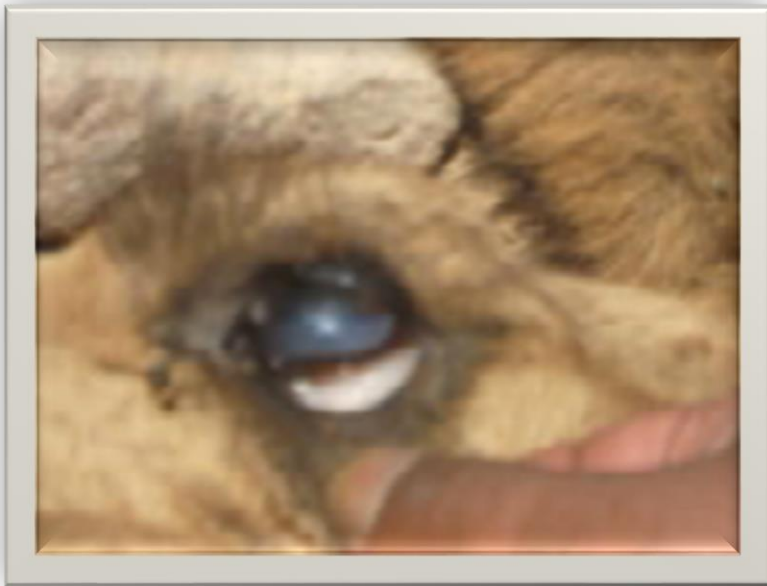


Trypanosomiasis

- **Althobab-Alhiam-Surra**
- **Trypanosoma Evansi**
- **Horse fly - Tick**



Anemia and corneal opacity: Dr. Mohamad Al-Araishi 2012



Eyelid swelling: Dr. Mohamad Al-Araishi 2012




Edema: Dr. Mohamad Al-Araishi 2013



Muscle atrophy and then death: Dr. Muhamad Al-Araishi 2012

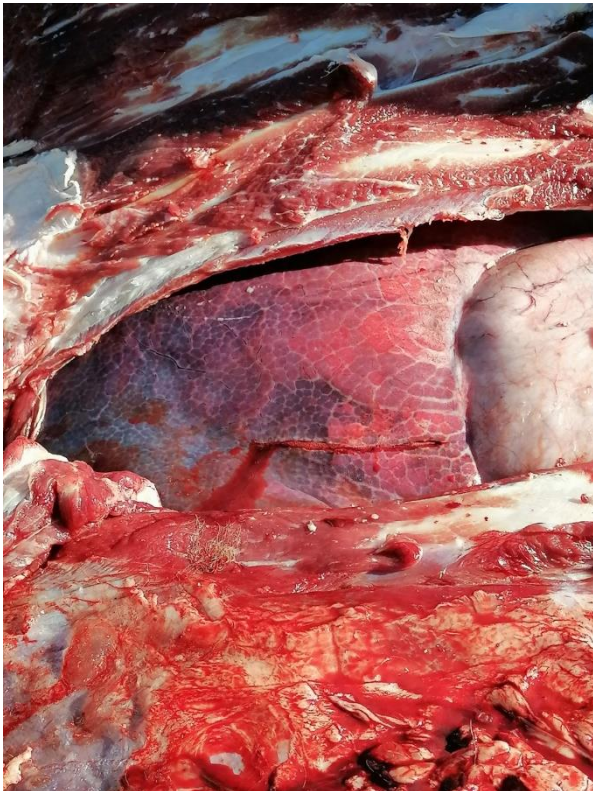


Treatment protocol

- **Quinapyramine salts (chloride-sulfate)**. It is possible to use **melarsomine hydrochloride** instead of quinapyramine salts.
 - Use of external antiparasitic agents such as **ivermectin** and **insecticides**, as these parasites are the vector of the disease.
 - Give **oxytetracycline** to avoid pneumonia and eye infections.
 - Provide **vitamins and mineral salts** to compensate for anemia and emaciation resulting from the disease.
- 

Pasteurellosis

- **Pasteurella multocida – haemolytica**
- **The disease is called travel fever.**




Treatment and prevention


- **Antibiotics**
- **Preventive vaccination**
- **(November: Two doses, separated by a month)**



Enterotoximia

- **The main cause is Clostridium bacilli**
 - **which may already be present in the digestive system of camels and found in the soil.**
 - **When the contributing factors occur, these bacteria become active, multiply and secrete their toxins, and then the disease appears.**
- 

Contributing factors

- 1- Wrong nutrition, sudden change of feed and eating feed rich in protein.**
 - 2- The presence of parasites such as coccidia and the presence of blood parasites such as trypanosomes cause weak immunity and thus the appearance of the disease.**
 - 3- Bacteria such as E. coli and Salmonella help anaerobic bacteria multiply.**
 - 4- There are reasons related to the hot climate and pressure in training for racing camels, which is an important factor in the appearance of the disease.**
 - 5- Selenium and copper deficiency in young camels, as it causes a deficiency in immunity.**
- 

Treatment and prevention

- **High doses of antibiotics**
- **Preventive vaccination**
- **(Every 6 months)**



SHIPS OF THE DESERT



Thank you

