

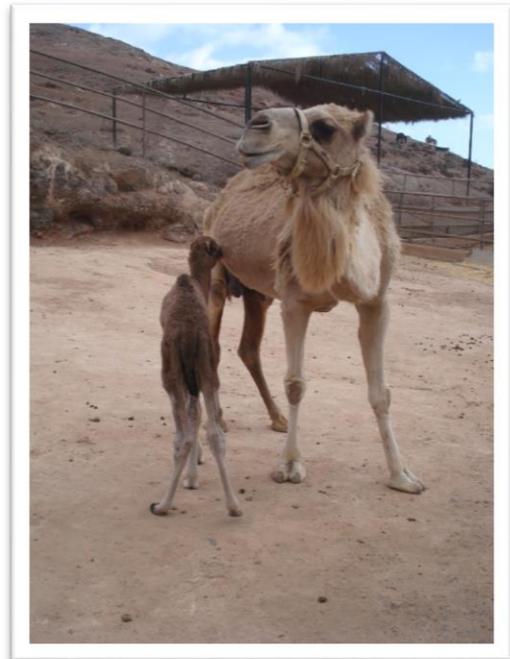
## BABY DROMEDARY CAMEL STUDY, OASIS PARK FUERTEVENTURA

In its installations in the south of the island, Oasis Park Fuerteventura maintains a camel (*Camelus dromedarius*) herd of more than 300 animals, the biggest group of this species in the European Union, which is used mainly for tourist-excursions and milk production. The animals reproduce regularly since many years.



Between November 2012 and July 2013 there have been 32 births. The mortality of lactating camel calves (31%) was relatively high compared to former years (25%). There was also observed that 3 lactating calves (9,4% of the total number of births) presented general weakness and neurological symptoms characterized by ataxia and opisthotonus.

All 3 cases appeared between the first and the second month of life of the calves. Physical examination did not reveal any abnormal symptom and temperature was also normal. Two of the camels showed hyperglycemia and hypocalcaemia. One of both affected animals died (33,3% of all affected individuals ), whilst the two camels which survived responded well to treatment based on intensive liquid therapies (Ringer Lactate 1l IV, in approximately 1-2h), broad-spectrum antibiotics-therapy (bencipenilinabenzatine, 10000 UI/kg, bencipenilinaprocaine 10000 UI/kg and dihidroestreptomicine 25 mg/kg), injectable enriched calcium (calcium gluconate 100 mg/kg; magnesium hypophosphite 16 mg/kg) and injectable vitamin E/selenium.



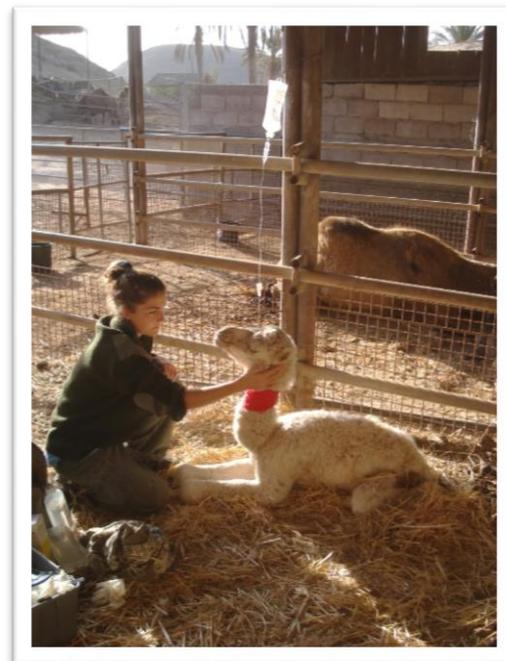
Differential diagnosis of ataxia and opisthotonus in young camels is mainly based on cattle knowledge and includes:

- Degenerative/developmental disorders: malformations of CNS, storage diseases...
- Nutritional: hypoglycemia, hypocalcemia, calcium-phosphore imbalances, hypomagnesimia, copper deficiency, thiamine/vitamin B1 deficiency, white muscle disease (vitamin E/Selenium deficiency)
- Neoplastic: brain or spinal cord tumors
- Infectious: viral, bacterial (listeriosis, clostridium, salmonella...), fungal (aspergillus, cryptococcus), parasitic (nervious coccidiosis, sarcocystis, coenuriasis...)
- Immflammatory/ traumatic
- Idiopathic: cerebral oedema,
- Toxicologic: tetanus, botulism, lead and mercury poisoning, miscellaneous plant toxins, mycotoxins, organophosphate or other insecticide toxicity, salt poisonings, urea/ammonia toxicosis



Based on physical examination, laboratory blood analysis (external lab) and response to treatment, our most likely diagnosis was hypocalcaemia related to a deficient diet of the mother and the young baby camel. We were not able to confirm this diagnosis because of lack of data from our patients and also lack of reference values related to this disease. It was the first time that we had seen these symptoms in our camel farm and there is no literature available about a similar case in other institutions.

In order to find out the reasons, a research project was developed with the collaboration of Abaxis.

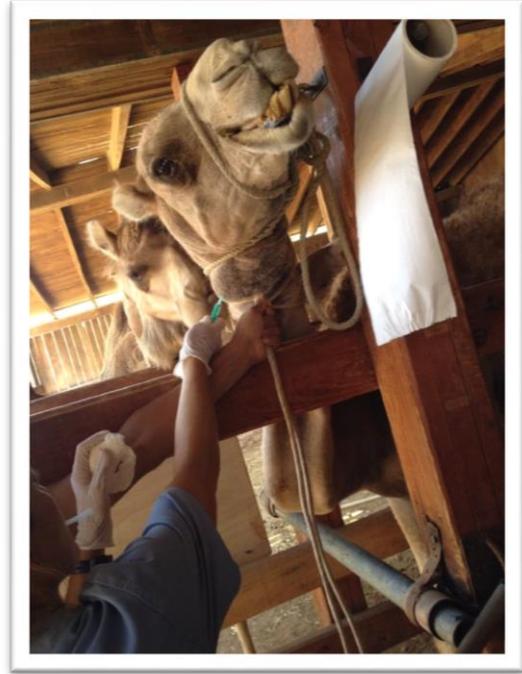


#### RESEACH PROYECT

We took samples from 10 mothers and their babies. The mothers were sampled during gestation and on the second day after partus. Baby camels were sampled on day 2, 15, 30 and 90. Complete blood examination was carried out as follows

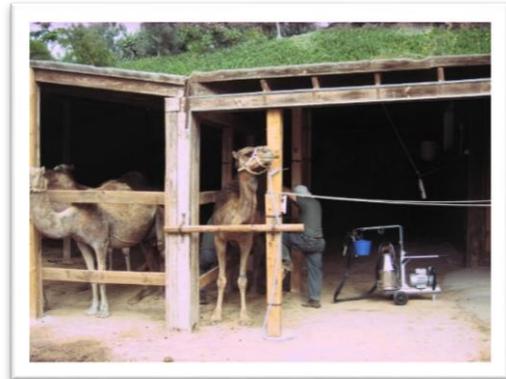
- VetscanV2:

- Large Animal Profile: this profile will be used to provide the following parameters in calves: ALB, ALP, AST, BUN, CA, CK, GGT, GLOB, MG, PHOS and TP.
- I-stat:
  - I-Stat CHEM8+ CARTRIDGE: this cartridge will be used to provide the following parameters both in mothers and in calves: Hct, Hgb, BUN, Crea, iCa, Glu, Cl, Na, K, TCO<sub>2</sub> and Anion Gap.
- Hematology: leukocyte count and packed cell volume.



#### PRELIMINARY RESULTS

After the first calving season has been completed we have the first results available. In order to interpretate this results it is important to remark that this season we had 40 births and no baby presented with neurologic symptoms similar to last year. It is important to considerate that during this season we made significant changes on the nutrition of mothers and calves including vitamin enriched mineral-salt stones and ryegrass for the baby camels.



Results are not yet completed and are being statistically analyzed but we can already see a difference in calcium and magnesium levels from these 2 seasons. The study will continue next calving season and we will analyze also how the milking and lactation can influence the calcium-phosphor levels of the mothers.

This reseach could not have been possible without the hard work of all the vet team at Oasis Park, Josue Román, Yasmin El Bouyafrouri and me, Olga Amann. We are very thankful for the help and support from Abaxis and specially from Bärbel Koehler. They supported us from the first day and we and all our 340 camels will always be thankful to them.