

UNIVERSITY OF HOHENHEIM
FACULTY OF AGRICULTURAL SCIENCES

Institute for Animal Production in the Tropics and Subtropics
Animal Breeding and Husbandry in the Tropics and Subtropics

Prof. Dr. Anne Valle Zárate

WEIGHT DEVELOPMENT IN CAMELS OF
DIFFERENT AGE AND SEX CLASSES UNDER
FIELD CONDITIONS IN A SEMI-ARID AREA IN
NORTHERN KENYA.

Master Thesis
presented by

Katinka Musavaya

Hohenheim
September 2003

**This work was funded by the
Eiselen Foundation Ulm.**

7 SUMMARY

The camel is a valuable animal for pastoral communities in the harsh and waterless regions of northern Kenya. It has an advantage over other livestock like goats and cattle by being able to provide milk and meat throughout the year. Of the research on growth and weight development that is available, little is based on long-term measurements that include seasonal variations as well as differences among years although these seasonal fluctuations have been observed.

From Ol Maisor Ranch, Laikipia District, a large number of monthly records (69,969 weights) of camel weight data from 1986 to 2002 were used in order to determine age specific weights and growth rates of camels and for demonstrating their adaptation potential. The weight development of camels belonging to different age and sex classes is clarified and it is shown how seasonal changes and yearly variations of precipitation influence the weight development.

Camels on Ol Maisor are kept in similar conditions as those prevailing in pastoral societies. Weights are not estimated based on linear body measurements but weighing is conducted by weighing scales. All camels are from the species *Camelus dromedarius*, but originate from different areas within Kenya and Pakistan. The breeds that were originally introduced onto the ranch are Turkana, Somali, Gabbra, Pokot and more recently also Pakistani breeds. There are a total of 77 different genotypes. Due to this high number, differences in growth potential and adult weight of the camels were included in the study by grouping camels into weight classes.

Analysis of variance was conducted in order to determine effects of sex, weight class, month, year, age and status on the live weight and weight gain of camels during different stages of development, namely as calves, as immature animals, as mature animals before reaching the adult weight and after reaching the adult weight, as well as during pregnancy and lactation.

Birth weight is 37.5 kg for both male and female camels, weaning takes place at 14 months with an average weight of 204 ± 3.6 kg for females and 212 ± 3.8 kg for males. Sexual maturity is reached at the age of 43 months in females and 48 months in males. Females weigh 351 ± 4.6 kg and males weigh 387 ± 4.7 kg. Adult weights are reached at the age of 10 years. Males weigh 562 ± 2.7 kg, empty females weigh 464 ± 2.2 kg.

The weight gain for calves is 0.382 kg/day in females and 0.406 kg/day in males. Immature camels gain 0.216 kg/day irrespective of their sex. After sexual maturity the weight gain is 0.061 kg/day in females and 0.118 kg/day in males. After reaching adult weights the weight gain ranges around 0.

Seasonal differences in live weight are lowest at birth (4.6 kg) and highest in lactating females (33.7 kg). Seasonal differences in weight gain are lowest as immature camels (0.130 kg/day) and highest during lactating (0.934 kg/day). Differences between dry, average and wet years in the growth rate of camels of all ages were statistically significant.