

## Milk Progesterone Profiles of Ankole and Ankole-cross Cattle in Uganda

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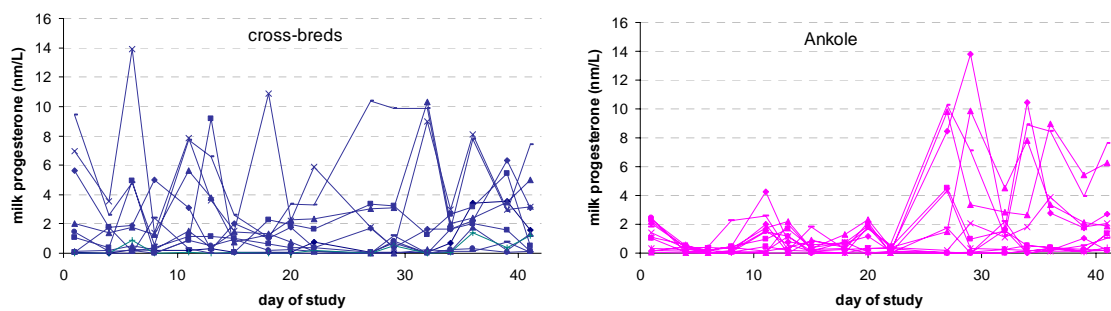
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The loss of livestock genetic resources is an emerging issue. An estimated 20% of livestock breeds are at risk of extinction, due to the popularity of a small group of high producing breeds (FAO, 2007). One example is the Ankole cow from Uganda being crossed to high producing dairy breeds, such as Holstein-Friesian. A large collaborative research project is underway to understand the economic and ecological sustainability of the Ankole and the Ankole-cross to develop strategies for the conservation of the local breed. This study contributed by investigating reproductive performance of the breeds in particular, examining oestrus cycles and fat mobilisation in the Ankole and Ankole-cross.

Twelve early lactation (1-3 months *postpartum*) cross-bred Ankole by Holstein-Friesian and twelve pure Ankole cows on a pasture-based dairy farm near Mbarara, Uganda, were milk sampled three times a week, over six weeks, during October and November 2007, coinciding with a tropical 'wet' season. Pasture production and quality increases during this season. The milk samples were analysed for milk progesterone concentration using radio-immuno assay (Spectria® kit from Orion Diagnostica Oy, Finland).



**Figure 1: Milk progesterone concentration (nmol/L) across the study for the all of the animals**

A breed by day of study interaction was confirmed by a Repeated Measures REML, showing a significant difference ( $P < 0.05$ ) in progesterone concentration during the first three weeks (Figure 1). Looking at the individual data, it appears that there were three pregnant cross-breds, and regular follicular activity (defined as milk progesterone  $> 3$  nmol/L) was shown by three of the crossbreds throughout the study. Four Ankole showed progesterone profiles consistent with good follicular activity and pregnancy, but only during the last three weeks of the study, or from the end of the month of October.

This study was similar to the work of Tegegne, *et al.* (1993), studying small east African zebu. They found a large number of the local breed remained anoestrus during an 8 month study period, which ran through wet and dry seasons. The variety of cyclic states and the apparent 'switching on' of the Ankole after day 20 indicates that they may be able to regulate and synchronise oestrus cycling to suit the climate. Studying the Uganda kob, Deutsch and Ofezu (1994) found the number of sexually receptive females rose significantly in November. These findings agree with a recent review suggesting animals in the tropics display oestrus only when conditions are favourable for breeding (Galina and Orihuela 2007). While the cross-breds had more animals pregnant and cycling throughout the study, the ability of the Ankole to regulate breeding patterns to suit the environment could have benefits for pasture-based producers.

A lot of information is still required on these two breeds, such as fat and protein % in milk, and their dry matter intake and pasture requirements. The language barrier and technical limitations made it difficult to study the farming system. As a simple investigation this work indicates that the Ankole has unique breeding strategies.

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