# Comparison of leptin and adiponectin concentrations in goat colostrum and mature milk: Preliminary results

**Sonia Gelsinger[1], Tania Lorenzo-yedra[2], Aridany Suarez-trujillo[2], Begoña Panea[3], María Jesus Alcalde[4], Juan Capote[5], Anastasio Argüello[2], Noemí Castro[2]**

*[1] Animal Science, Penn State University, USA*
*[2] Animal Science, Universidad de Las Palmas de Gran Canaria, Spain*
*[3] Centro de Investigación y Tecnología Agroalimentaria de Aragón, Centro de Investigación y Tecnología Agroalimentaria de Aragón, Spain*
*[4] Departamento Producción Animal y Ciencia de los Alimentos, Universidad de Sevilla, Spain*
*[5] Unidad de Producción Animal, Pastos y Forrajes, Instituto Canario de Investigaciones Agrarias, Spain*

Leptin and adiponectin are hormones that function in regulating energy metabolism and have recently been identified in colostrum and milk from several species including humans; however, data is limited, especially in goats. The objective of this study was to further investigate the concentrations of each of these hormones in goat colostrum and mature milk from different spanish breeds (Guadarrama, Florida, Payoya and Tinerfeña). Colostrum samples were collected from sixteen female goats (n = 4 per breed) at the time of parturition. Milk samples were collected from the same goats 30 days post-partum. All samples were frozen immediately following collection and transported to the Universidad de Las Palmas de Gran Canaria for analysis. Fat was removed from each sample and adiponectin and leptin concentrations were determined in skimmed colostrum and milk using enzyme-linked immunosorbant assays. Data were analyzed in SAS to determine the effects of breed, timepoint, and their interaction. Goat breed did not affect concentrations of either hormone and there were no interactions between breed and timepoint. Adiponectin concentration was 152.39 ± 9.3 µg/mL in colostrum and decreased by 52.2, 60.2, 29.0, and 68.1% in mature milk of Florida, Guadarrama, Payoya, and Tinefeña breeds, respectively. Adiponectin concentration in mature milk (70.81 ± 8.4 µg/mL) was significantly lower than in colostrum ($P < 0.01$). These concentrations are much higher than those reported in dairy cattle. Leptin concentrations were lower compared to adiponectin and tended to be greater in colostrum than in mature milk (2.05 ± 0.4 and 1.15 ± 0.3 µg/mL, respectively; $P = 0.08$). These results, similar to data from dairy cattle and other species, indicate that peak concentrations of leptin and adiponectin occur in colostrum and decrease as lactation progresses. It is not clear how these hormones may affect growth and carcass characteristics in growing goat kids. However, higher blood plasma leptin concentration has been reported in calves fed colostrum compared to a milk-based formula and further studies are needed to determine whether these hormones are absorbed and affect the development of the neonate.

**Keywords:** leptin,adiponectin,colostrum,mature milk