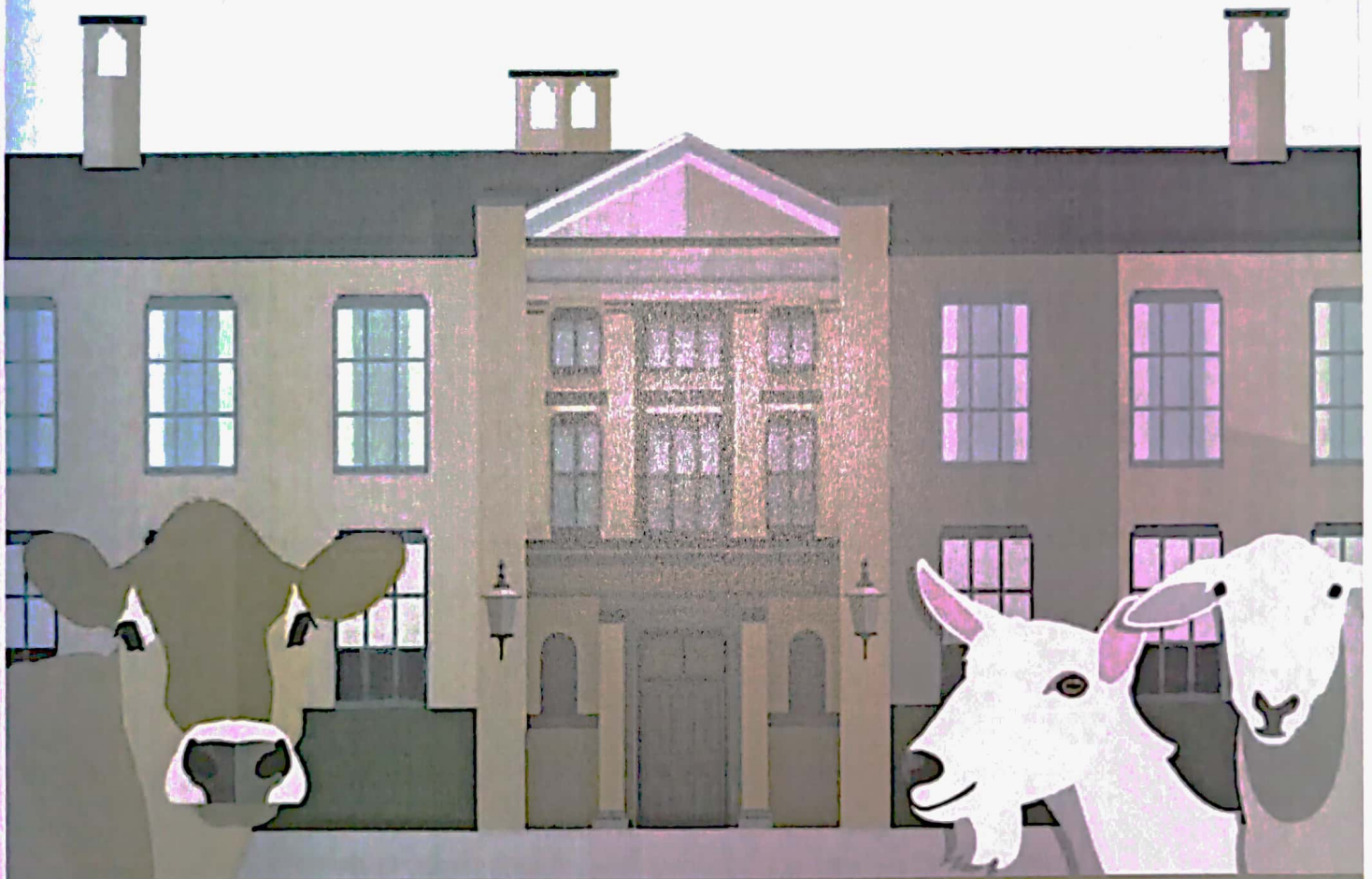


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## 3.3

**Monitoring of subclinical ketosis in Poland, based on monthly milk recording**

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The aim of the lecture is to present the new system of monitoring of subclinical ketosis (SCK) in Poland, based on monthly milk recording. The preliminary results of such a monitoring will also be presented as well as the main risk factors for SCK in Poland. SCK is an excess of circulating ketone bodies in the blood without clinical signs of ketosis, such as decreased appetite, weight loss and milk production. The lack of clinical signs makes SCK difficult to detect. However, using blood  $\beta$ -hydroxybutyrate (BHBA) testing to measure the incidence or prevalence of SCK in a herd is a powerful and useful clinical tool. In Poland, we use milk content of BHBA (M-BHBA) and acetone (M-A) to detect cows and herds in risk of SCK. M-BHBA and M-A are determined by MilkoScans with FTIR, in four labs of Polish Federation of Dairy Cattle Breeders and Milk Producers (the association which serves the monthly milk recording in Poland). The system (Kowalski and Słoniewski, 2013) has been introduced into the practice in April 1., 2013 and about 720 000 cows are being monitored annually. The cows between 6 and 60 days in milk (DIM) are not diagnosed but identified as „in risk”. A special statistical method has been implemented to calculate the probable frequency of subclinical ketosis (PFSK). If it is higher than 10 or 20%, the herd is identified as „in risk” or „in high risk” of SCK, respectively. The results are presented to the farmers in monthly reports delivered by the internet. A preliminary survey of the results shows that about 11% of cows at 6-60 DIM are in risk of SCK. Surprisingly, more ketotic cows have been found in lower productive herds than in higher productive ones. High milk yield is not a risk factor for SCK in Poland. Other factors will be shown and discussed. Our next activities will also be presented.

## 3.4

**First characterization of the goat mammary gland mitochondrial proteome: A gel based approach on the study of tolerance to weight loss in two breeds from the Canary Islands**Graziano Cugno<sup>1</sup>, Lorenzo E. Hernandez-Castellano<sup>2,3</sup>, Sebastian Planchon<sup>4</sup>, Noemí Castro<sup>2</sup>, Anastasio Arguello<sup>2</sup>, Jenny Renaut<sup>4</sup>, Juan Capote<sup>5</sup>, Alexandre M. Campos<sup>1</sup>, André M. Almeida<sup>6</sup> [aalmeida@fmv.utl.pt](mailto:aalmeida@fmv.utl.pt)

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Seasonal weight loss (SWL) is the most important limitation to animal production in Tropical and Mediterranean regions, conditioning producer's incomes and the nutritional status of rural communities. It is of utmost importance to produce strategies to oppose adverse effects of SWL. Breeds that have evolved in harsh climates have acquired a tolerance to SWL through selection. Most of the factors determining such ability are related to biochemical metabolic pathways and are likely important biomarkers to SWL. In this study, a gel based proteomics strategy (BN: Blue-Native Page and 2DE: Two-dimensional gel electrophoresis) was used to characterize the mitochondrial proteome of the secretory tissue of the caprine mammary gland. In addition, we have also conducted an investigation of the effects of weight loss in two dairy goat breeds with different levels of adaptation to nutritional stress: Majorera (tolerant) and Palmera (susceptible). The study was conducted using 10 Majorera and 10 Palmera goats, divided in 4 sets, 2 for each breed: underfed group fed on wheat straw ad libitum (restricted diet, so their body weight would be 15-20% reduced by the end of experiment), and a control group fed ad libitum on commercial feed. After 22 days, mammary gland biopsies on the animals were conducted following standard procedures and under competent veterinary supervision. The proteomic analysis of the mitochondria of mammary glands, upon organelle isolation, enabled the resolution of a total of 277 proteins, and 184 (66%) were identified by MALDI-TOF/TOF mass spectrometry. Among the proteins identified were subunits of the glutamate dehydrogenase complex and the respiratory complexes I, II, IV, V from mitochondria, as well as numerous other proteins with different functions in: metabolism. development. localization. cellular organization and biogenesis. biological regulation. response

