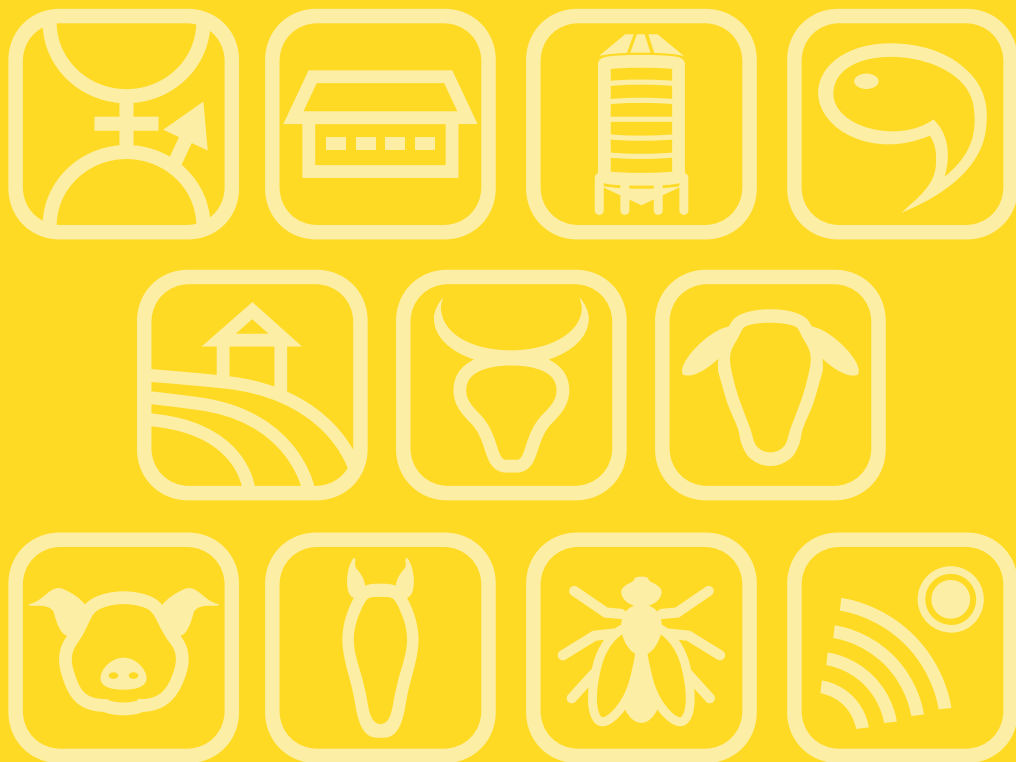


Book of Abstracts

of the 75th Annual Meeting
of the European Federation of Animal Science



Book of Abstracts No. 34 (2024)
Florence, Italy
1-5 September, 2024

Effects of the inclusion of grape stem at different rates in intensive fattening cattle diets on in vitro fermentation parameters

C. Baila¹, M. Joy¹, I. Casasús¹, S. Lobón¹, D. Villalba², M. Blanco¹

¹ Centro de Investigación y Tecnología Agroalimentaria de Aragón (CITA)-IA2, Av. Montañana 930, 50059 Zaragoza, Spain, ² Universitat de Lleida, Av. Rovira Roure 191, 25198 Lleida, Spain

The inclusion of by-products that do not compete with human food in ruminant diets is encouraged. Grape stems may be of interest because they are rich in polyphenols and proanthocyanidins, despite their low crude protein (CP) and high content of fibre. The aim of the present study was to evaluate the effect of replacing straw with different proportions of grape stems (0%, 3%, 6% and 9%) in two beef cattle concentrates differing in CP content (12 vs 14%) on in vitro fermentation parameters: gas, methane (CH₄), dry matter degradability (IVDMD), ammonia (NH₃-N), and volatile fatty acids (VFA). For that, bovine ruminal fluid was used to evaluate 8 mixtures in an in vitro fermentation assay with Ankom system (3 replicates in 3 separate runs) during 48 h. The diet consisted of 91% concentrate (12% or 14% CP) plus 9% of stem/straw combination (0/9, 3/6, 6/3, 9/0 % of stem/straw). The inclusion of grape stem in the diets with 12% CP concentrate caused a linear increase in gas (P=0.01) and ammonia production (P<0.05) without affecting CH₄ production, IVDMD, and total VFA (P>0.05). The inclusion of grape stem had a quadratic effect on the proportion of acetic acid (P=0.009), butyric acid (P=0.04) and valeric acid (P=0.008), while it linearly decreased the proportion of propionic acid (P<0.001). On the other hand, in the diets with 14% CP concentrate, the inclusion of grape stem only linearly increased the proportion of acetic acid (P=0.001) and linearly decreased the proportion of propionic acid (P<0.001). These results support the substitution of straw by grape stem in fattening diets, especially when high-protein concentrates are used.

Session 90

Poster 25

Avocado (*Persea Americana*) seed as an alternative ingredient in the diet of replacement goats. In vivo digestibility, N balance and energy balance

A. Sanchez Garcia¹, M. Romero Huelva¹, I. Rivelli¹, A. I. Martin Garcia¹

¹ Estación Experimental del Zaidín, CSIC, Producción Sostenible de Rumiantes, Calle San Miguel 101, 18008 Granada, Spain

Avocado industry is rapidly expanding, yielding over 100,000 tons/year of fruit in Spain and generating substantial wastes. These needs exploring sustainable options like using these by-products in livestock feed. The avocado seed (AS) shows promising properties in this way. Therefore, this study aims to assess the impact of incorporating AS into the diets of young goats, focusing on feed intake, digestibility, energy/N balance and metabolic indicators. Twenty Murciano-Granadina goats aged six months (BW = 25.5 ± 1.7 kg) were divided into two groups, the control (CTL) group (n=10), fed with a commercial concentrate and the treatment (AVC) group (n=10) fed with the same concentrate where a 9% of barley and 2% of maize were replaced by AS flour. Both groups were offered 80:20 forage to concentrate. After a 15d adaptation period, animals were placed individually in metabolic cages (5 d) for nutrients digestibility assay. Daily intake was higher in CTL than AVC (1.06 vs 0.96 kg, P=0.027). No significant differences resulted in DM, OM, CP, CF, and ADF digestibility (P>0.05) between CTL and AVC. However, CTL showed lower NDF intake (295 vs 349 g/d, P=0.002) and digestibility (37.0 vs 45.9 %, P=0.004) than AVC. N excretion was higher in CTL (1.28 vs 1.11 g/kg BW^{0.75}, P=0.051). The CTL had higher digestible energy relative to energy intake than AVC (75.7 vs 65.6 %, P=0.030). No significant differences were obtained in plasmatic β-Hydroxybutyrate concentration (P>0.05). Yet, systemic NEFA concentration was higher in CTL than AVC (0.332 vs 0.268 mmol/L, P=0.045), possibly due to higher crude fat intake in CTL (31.2 vs 24.8 g/d, P<0.001). No significant differences in urine purine derivatives (P>0.211) indicated unaffected microbial protein synthesis. Adding AS to young goats' diet had no adverse effects on N use, nutrients digestibility, metabolism, or rumen microbial protein synthesis. A balanced energy and ruminal nitrogen supply are crucial for successful AS inclusion in ruminant diets, making it a suitable ingredient for circular economy and livestock sustainability.