

## Dietary manipulation and increase in plasma unsaturated fatty acids in sheep

### ABSTRACT

Forty three 7-month old, Barbados Black Belly × Malin crossbred sheep were used for the trial. They were allotted into three treatment groups fed varying levels of oil palm (*Elaeis guineensis*) frond pellets and commercial sheep pellets. Treatment diets were 80% commercial pellet+20 % (% w/w) oil palm frond pellet (CON group, n=15), 50% commercial pellet+50% oil palm frond pellet (% w/w) (HAF group, n=14) and 80% oil palm frond pellet+20% (% w/w) commercial pellet (OPF group, n=14). The plasma fatty acid profiles from these animals were compared before and after 14 weeks of feeding. Results showed that total unsaturated fatty acid content in the CON group had increased by 10% ( $p<0.01$ ) from the pre-treatment values. All three treatment groups had significantly different plasma n-6 and n-3 polyunsaturated fatty acid contents at the end of the trial. In fact, the CON group had significantly ( $p<0.01$ ) more n-6 polyunsaturated fatty acid content compared to its own initial values, and also the values from the HAF and OPF groups. However there was a significant ( $p<0.01$ ) decline in plasma n-3 polyunsaturated fatty acids in all groups. The final total unsaturated to saturated fatty acid content ratio was significantly ( $p<0.01$ ) highest in the CON group, demonstrating the high plasma unsaturated fatty acid content in these animals. This study shows the plasma unsaturated fatty acids in sheep can be increased by dietary manipulation.

**Keyword:** Fatty acids; Oil palm frond pellets; Unsaturated fatty acids