**Application:** Methionine balancing diet during transition and early lactation periods increased milk yield and composition in dairy ewes improving commercial farm profitability.

**Introduction:** Recent research reported dietary recommendations of digestible methionine in dairy ewes similar to those of dairy cows (2.5% metabolizable protein, Francia et al., 2021). When rumen protected methionine was supplied in lactating dairy ewes’ diets, milk protein content increased by 5%. The objective of this study was to confirm, at commercial farm level, the effect of digestible methionine supply on milk yield and composition in dairy ewes.

**Materials and Methods:** 525 Assaf ewes in a commercial farm, Villafranca de Duero, Valladolid, Spain were feed for 3 weeks before lambing to 3 months after. A TMR diet was fed ad libitum formulated to meet nutrient requirements (INRA 2007). Treatments were two diets (18.1% CP, NEL=5.96 Kcal/kg DM): basal diet “CTR” and MS plus methionine supplementation (Metasmart Dry ; isopropyl ester of 2-hydroxy-4-methylthio butanoic acid, Adisseo) provided 71 and 100% of Digestible Methionine requirement, respectively. Metasmart Dry was administered in the milking parlour concentrate with 9 and 12g/animal/day pre- and post-partum periods. The trial was conducted as a 2-groups randomized block design. Ewes were randomly allocated to experimental treatments. Individual milk yields were recorded daily and milk fat and milk protein monthly.

**Statistical analysis:** Data were analysed using the MIXED procedure of JMP for repeated data with treatments as fixed factors.

**Results:** Milk yield is higher in ewes fed MS prepartum (2.97 vs 2.80 kg/d, prepartum: *P<0.05*), milk protein content did not differ. Ewes fed MS decreased milk fat content (6.01 vs 5.63 %, Lactation: *P<0.01*). Milk protein yield increased in ewes fed MS before lambing (132.4 vs 127.5 g/d, Lactation period *P<0.01*). Ewes fed MS before lambing had higher milk fat yield (149.5 vs 142.9 g/d, prepartum: *P<0.01*)

Table 1: Lactation performance means, and standard errors rates (± SE).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  Prepartum  | CTR  |   | MS  |   | *P-value*  |
| Lactation   | CTR  | MS  |   | CTR  | MS  |   | Prepartum  | Lactation  | TRT\*Period  |
| Milk, Kg  | 2.58± 0.05b  | 3.03± 0.04a  |   | 2.77 ± 0.07b  | 3.19±0.05a  |   | 0.0015  | <0.01  | 0.8378  |
| Milk protein, %  | 4.62± 0.02b  | 4.74± 0.02a  |   | 4.55 ± 0.03b  | 4.65± 0.02b  |   | 0.0006  | <0.01  | 0.4834  |
| Milk fat, %  | 6.02± 0.05a  | 5.64± 0.05b  |   | 6.01 ± 0.08a  | 5.62 ± 0.06b  |   | 0.8040  | <0.01  | 0.8951  |
| Milk protein, g/d  | 121 ± 1.66c  | 133± 1.52ab  |   | 127 ± 2.39bc  | 137 ± 1.94a  |   | 0.0099  | <0.01  | 0.4169  |
| Milk fat, g/d  | 141 ± 2.29  | 144 ± 2.06  |   | 149 ± 2.58  | 149 ± 2.58  |   | 0.0115  | 0.6474  | 0.4144  |
|   |   |   |   |   |   |   |   |   |   |

**Conclusions:** Balancing diet for methionine during transition period before and after lambing improved performances of lactating dairy ewes.

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**Reference** F. Francia, A. Kihal, M.E. Rodríguez-Prado, G. Caja, X. Such, L. Bahloul, and S. Calsamiglia at ADSA 2021