**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