Welfare issues related to nutrition, milking frequency and heat stress in dairy goats

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Goats are naturally browsers; they prefer leafy vegetation to grass, which is linked not only to the type of feed they prefer but also to the feeding behavior. Although goats adapt well to intensive dairy production systems, some concerns related to animal health and welfare arise. The production systems in which goats are permanently confined and milked once a day are currently increasing in the Mediterranean area. In Andalusia, the principal goat-farming region in Spain, 42% of goats and 47% of farms operate under this production system, which is characterized by feeding large amounts of concentrates. Diets with large amounts of rapidly fermentable carbohydrates produce the depletion of fibre degradation, which is related to acidotic conditions and may compromise milk fat levels. Data from a survey conducted on Andalusian dairy goat farms with regard to the level of concentrate used throughout lactation showed how the low levels of rumen pH are linked to depressed fibre degradation, low fat levels in milk, increased milk somatic cell counts and alteration of goat immune status. Regarding milking frequency, there are concerns that dairy goats milked with reduced frequency may suffer alterations of behaviour associated to udder distension and inflammatory responses. Nevertheless, compared to dairy cows, goats have udders with stronger teat sphincter and large cisterns that make them more tolerant to extended milking intervals with small changes in their behaviour. Dairy goats milked once daily, when compared to twice daily, spent less time eating, but plasma cortisol levels as well as the time spent drinking, standing or lying do not change. Similarly, goats are more tolerant to heat stress than dairy cows. Heat-stressed dairy goats decrease their intake and show greater haptoglobin, but normal NEFA levels, in blood. Moreover, when injected with glucose their pancreas secreted lower insulin as a way to keep their normal glucose levels in blood.

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