K-06
Nutrition disorders in grazing sheep: Intoxications

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Keywords: Toxic plants; Heavy metals; Biologically active elements; Mycotoxins

During grazing sheep can have access to a wide variety of poisonous plants, mycotoxins, heavy metals and/or biologically active elements responsible for an ample range of deleterious effects and significant economic losses in flocks worldwide, especially those reared in extensive o semi-intensive conditions. *Sola dosis facit venenum* the classic toxicology maxim credited to Paracelsus, illustrates well the fact that the some of compounds mentioned above can cause intoxication if consumed acutely or chronically in excess.
Some plants, of spontaneous growth, decorative purpose or cultivated, have developed chemical strategies to adapt to the environment and to avoid herbivory, which can cause harmful effects on animals that consume them. Thereupon, several compounds such as pyrrolizidine alkaloids, calcinogenic glycosides, oxalates, tannins, coumarins, nitrate-containing plants, anti-nutritional factors, among others, have been associated with plant poisoning in sheep. Due to the nonspecific nature of the clinical signs it is usually particularly difficult to establish cause-effect relationships between the consumption of plants and clinical disease, leading to plant poisoning is an underdiagnosed condition. Additionally, factors linked to the plant, animal and management system, can condition the toxicity of a plant and the occurrence or not of poisoning. It is necessary for the veterinary practitioner to consider these etiologic agents and factors in the differential diagnosis in sheep.
Mycotoxicoses are clinically responsible for a variety of disorders in sheep: liver damage (e.g. facial eczema, lupinosis, aflatoxins), digestive and immunosuppression (e.g. trichothecene poisoning), vascular (e.g. fescue poisoning, ergotism), reproductive (e.g. abortion, estrogenism) and locomotion/neurological (e.g. ryegrass tetany, ataxia-tremor syndrome, Paspalum poisoning) problems. Nonetheless, the clinical course is often subclinical and accompanied by production losses.
A varied set of inorganic or organic substances can be potentially toxic to sheep too (e.g. arsenic, copper, fluoride/fluorine, lead, nonprotein nitrogen, selenium, zinc, etc.). A classic example is a high susceptible to chronic cooper intoxication due to predisposition to accumulate cooper in the liver along time and limited ability to excrete this compound. Despite is generally associated a chronic dietary exposure to doses above those recommended, tree treatments with copper-based fungicides is at the origin of some poisoning in flocks. Accidental or occasional poisoning during grazing with other heavy metals, organochlorines, organophosphates, and carbamates may also occur.
Diagnosis of all these intoxications may be challenging. Acute clinical forms may present specific signs and progress to death. In such circumstances, symptoms and lesions can lead to a presumptive diagnosis. However, subacute to chronic forms, related to permanent or long-term availability and intake of a toxic compound, may course as an unspecific condition (e.g. emaciation, poor external aspect, ill-thrift, etc.).
Confirmation of the diagnosis must be always made based on the history of exposure, pathological findings (macroscopic and microscopic) and ancillary tests, if available.

doi: 10.1016/j.anscip.2023.01.016

K-07
Balancing fibre, sugars, and starch of the diet to have high milk production and healthy ewes

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Keywords: Sheep; Diet carbohydrates; Milk production; Milk fat

This review will highlight the knowledge accumulated on the utilization of dietary carbohydrates, and their productive and health effects in lactating ewes.
Milk production is heavily dependent on nutrition during pregnancy. In this stage, fibre has a critical role, due to the limited ability of the rumen, especially when carrying multiples foetuses, to accumulate it. When the intake of energy is low, body reserve mobilisation is fast, with increased risks of subclinical or clinical ketosis (pregnancy toxaemia). To maximize DM and energy intake, the data available suggest using highly degradable NDF sources, limiting the NDF intake from 0.9% of BW or 35% of dietary NDF (multiple births), to 1.1% of BW or 45% of dietary NDF (single births). Sugars and starch are also important nutrients in this stage, especially in the last weeks of pregnancy. While their supplementation is crucial, no clear indications are available in terms of amounts, concentrations, and sources. In cases of ketosis, gluconeogenesis is partially impaired. This suggests using low-degradable starch sources, to maximise glucose digestion at the intestine level. Starchy diets in late pregnancy have also a positive impact on the glucose metabolism of the offspring and its milk yield persistency in the first lactation.