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Grazing animals can ingest soil particles which can accumulate and damage the digestive tract, reducing diet digestibility and nutrient absorption and even causing sand colic in horses. Ingested soil also exposes animals to environmental contaminants as trace metals or organic pollutants. This can result in pathologies, non-compliance during anti-doping tests in horses or exceeding authorised thresholds in food of animal origin. In cattle, soil ingestion has never been studied in conditions of mixed grazing and in horses it is very little described. Our experimental design consisted in 3 groups: equine E (6 horses), cattle C (12 heifers), mixed M (3 horses and 6 heifers), grazing continuously at the same stocking rate between groups on 3 different plots from spring to autumn 2019 and 2020. Saddle horses (509 kg BW) and beef cattle (484 kg BW) were 2 and 1 years old respectively. The initial grazing area of 3 ha per group was extended to 6 ha from July. Each month, sward height and animal body weight (BW) were measured and daily soil ingestion was individually estimated (from grass, faeces and soil samples) using titanium as soil marker. Data were analysed by mixed models. Correlations of soil ingestions with rainfall, sward height and average daily gain were analysed. Both years showed significant period × animal species and period × grazing management interactions ($P<0.01$). In 2019, soil ingestion by C cattle (8%) was the highest, the lowest were for E and M horses (2.5%). In 2020, soil ingestions by cattle were higher than those by horses (5.1 vs 2.4%) whatever the grazing management. C cattle lose BW in the autumn 2019. This may result from the decrease in herbage availability which may have encouraged them to graze more closely to the ground compared to spring and summer (soil ingestion of 16.6%, Nov 2019). Soil ingestions were negatively correlated with sward heights for both years and positively correlated with rainfall in 2019 ($P<0.001$). This study of soil ingestion will be useful for risk assessment and recommendations for farmers to ensure animal health and food safety.

Owner-reported use of feed supplements in Swiss riding horses

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Recommended rations for domestic horses consist of a large proportion of grass-based roughage, small amounts of cereal based concentrates, salt and a mineral-vitamin-supplement. However, additional feed supplements (AFS) for different purposes have become increasingly popular among horse owners. This study's aim was to investigate, which AFS are fed to Swiss riding horses by their owners. Through an online survey, which was part of a study on the orthopaedic health of Swiss riding horses, information on the equines' diets was gathered. Among other inclusion criteria, owners could only take part, if their horse was ridden regularly and (based on their judgement) healthy. Of the 248 participants, 90% reported that their horse had pasture access at least 5 times a week during the season. Of all owners, 72% reported to know the amount of roughage and concentrates their horse was fed (9.7±3.7 kg and 2.0±1.5). Of all owners, 98% reported that their horse had access to salt, 74% reported the supplementation of a basic mineral-vitamin-feed. Surplus to these feeds, 61% of owners offered at least one AFS to their horse. The most common groups of AFS fed were supplements rich in magnesium (26%), Omega fatty acids (22%), vitamin E and/or selenium (16%), herbs (7%), mixed supplements for joint health (6%), hoof quality (5%), or gastrointestinal health (4%), general tonics (5%), plant-based oils (4%), or additional roughage or cereal based supplements (4%). Whether owners offered their horse AFS was not significantly associated with the age or sex of horse or owner, or the time the person had owned the horse. Compared to healthy horses, a higher proportion of horses with an owner-reported disease received AFS (56% vs 69%, $P=0.04$). Compared to horses owned by leisure riders, a higher proportion of horses owned by self-reported competition riders received AFS (52% vs 69%, $P=0.01$). The feeding of AFS was more common in Warmblood horses than in other breed categories (67% vs 51%, $P=0.01$). The results indicate, that many owners offer AFS with the intention to manage diseases or to support their horses' athletic performance.