Nutritional Disorders

Disorder	What do you See?	Cause/Transmission	Treatment	Prevention
Copper (Cu) Toxicity	• may not be apparent for some time that over consumption of copper is occurring • sudden onset generally after a stressful event (transport, handling etc) • signs include: rapid breathing, yellow tinge to skin and membranes; dark brown urine • most affected sheep die	• sheep are much more susceptible to copper toxicity than any other livestock species • excessive intake of copper over a period of time causes a build up of copper in the liver • liver reaches a maximum holding capacity (1-3 g of Cu/kg liver), may take 30-100 days • as a result of stress, the liver suddenly releases stored copper resulting in the break down of red blood cells and jaundice	• may not know until an animal dies; if diagnosed in post mortem as copper toxicity, treat flock to prevent more • identify and remove the source of high Cu (cattle rations, high-Cu mineral mixes, licks, drenches, corroding Cu water pipes, Cu-contaminated pasture). • add Cu-antagonists to the diet of the "at-risk groups" for 4-6 weeks. The best researched antagonists are Molybdenum (Mo), Sulfer (S), Zinc (Zn) and Iron (Fe) (veterinary prescription)	• be aware of copper levels in supplements (don't allow free access to supplements intended for other types of livestock) • avoid using slurry from hog farms on fields used to produce feed for sheep (high in Cu) • total Cu Intake by sheep should be no more than 8-15 mg Cu/kg feed dry matter basis; this can generally be supplied in the diet, without Cu added to a mineral supplement. • have your feeds analyzed • avoid using forages grown on fields fertilized with hog manure (often high Cu output). If this is unavoidable, have soil and feed tested for Cu
White Muscle Disease	• most often seen in newborn lambs, but may also occur in feeder lambs that have not grazed green forage for more than three months. • depends on muscle groups affected may see: Stiff gait, difficulty getting up, unable to lift heads or suckle, rapid breathing, sudden death • lambs are prone to starvation, pneumonia, diarrhea	• degenerative muscle disease • deficiency of selenium (Se) interferes with the transport, storage, and usage of vitamin E in the body • seen in areas that are deficient in Se in the soil and therefore in forage	• injection of Se-tocopherol (Vit E) • consult with veterinarian on specific product information	• ensure ewes have sufficient Se in diet during pregnancy • if soil is deficient (determine through feed analysis) provide commercial trace mineral mix with Se • if ewes are not supplemented nutritionally, inject ewe and lamb after birth with Se/Vit E solution
Grass Tetany	• most often seen in ewes, 4-6 weeks after lambing • relatively uncommon • affects animals recently turned onto pasture • animal is uncoordinated (staggers), muscle twitching, may have convulsions (legs remain rigid)	• deficiency of magnesium (Mg), and possibly calcium (Ca), and high potassium (K) levels • some areas are naturally low in Mg, therefore decreased in forages • heavy applications of nitrogen also interferes with plant ability to take up Mg • lush grass forage may also decrease Mg absorption by animal • also considered a metabolic disorder	• emergency treatment with Mg and Ca solutions (consult your vet) • recovery occurs quickly if treated in time	• if it is a problem test soil and forages for Mg content • consider legume/grass combination for pastures (legumes convert nitrogen and provide higher mineral levels) • soils with low Mg can be upgraded by application of limestone or supplement animal's diet • apply fertilizer at recommended levels

Nutritional Disorders: Poisonings (often cause signs of neurological disorders)

Disorder	What do you See?	Cause/Transmission	Treatment	Prevention
Plant Poisonings	• **most plant poisonings** are characterized by signs such as: • sudden death • laboured or very rapid breathing • frothing at the mouth and excessive salivation, weakness, inability to stand • convulsions or erratic behaviour, greenish saliva (vomiting) • coma • other plants (e.g. St. John's wort, trefoil, certain clovers) cause animals to become **sensitive to light** (skin not covered by wool is burnt, inflammation and eventually sloughs) • dark skinned sheep less affected than light skinned sheep • red clover may cause **infertility in ewes** if fed during the breeding season	• plant poisoning is not likely to occur on cultivated grounds or well managed pasture. • most poisonous plants are unpalatable and livestock rarely eat them when other forage is abundant. • More prone to eat poisonous plants when other plants are not available (in the spring and fall, during a drought or on an overgrazed pasture).	• treatments generally ineffective by the time the sheep is found • sheep affected with signs of light sensitivity should be removed from vegetation • provide sheds or shade is available • if severe, burned areas can be treated with antibiotic ointments	• prevention much more effective than treatment • don't overgraze pastures • have plenty of drinking water, calcium, phosphorous and mineral mix available at all times to prevent depraved appetites. • manage pastures to discourage weeds • a list of poisonous plants found in Ontario is available from OMAFRA
Nitrate poisoning	• animals fed heavily fertilized immature crops • acute cases: increased heart rate, mucous membranes are bluish (gums etc.), muscle tremours, coma, death • chronic cases: reduced performance, decreased milk production, reproductive problems	• nitrate altered to nitrite in blood stream, decreases oxygen transfer to cells • increased risk during droughts or if plants are stressed (accumulation of nitrates in plant)	• acute cases have a poor prognosis • change diet for chronic cases	• apply fertilizers at recommended rates • consider testing forages • monitor closely if decreased plant growth likely
Farm yard poisoning	• varies with cause	• paint, batteries, smelters • pesticide (incecticide, herbicide, rodenticide etc.)	• varies with cause, contact your veterinarian	• keep the barn yard, sheep pens, and pasture free of toxic materials • prevent exposure to freshly paint • clean up or fence off garbage sites that sheep may access.
Urea Poisoning	• affects animals being fed urea in diet • uneasiness, tremors, excessive salivation, rapid breathing, uncoordinated, bloat.	• improper mixing of urea supplement into a grain ration • sudden increase in urea supplement in diet • excess urea broken down into ammonia which is absorbed into the bloodstream – as with nitrate poisoning	• call a veterinarian to treat cases of urea toxicity • as an emergency measure, vinegar may be administered as a drench - lowers rumen pH and neutralizes ammonia	• follow label instructions when adding urea supplement to the diet