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Know Cover Crops Before Grazing

Last year, released from Kansas State University Ag Experiment Station and Cooperative Extension Service is a publication that details which cover crops are poisonous to livestock or those that can cause metabolic disorders.

Hairy Vetch is a nitrogen-fixing plant that works well as a cover crop. However, it is not recommended for livestock because of its toxicity to cattle and horses. The mortality rate for affected animals ranges from 50-100%, typically as a result of kidney failure. Any stage of hairy vetch growth is risky for grazing. Animals with black pigmented skin (Angus and Angus crosses, Holsteins and black horses) are the most susceptible.

Lupin is a good source of protein and energy for both ruminants and monogastrics, but only when the 4 nontoxic species are used: *narrowflower lupine, white lupine, European yellow lupine, and tarwi*. There are 6 toxic lupin species that are particularly toxic to cattle and sheep: *silky lupine, tailcup lupine, velvet lupine, silvery lupine, summer lupine and sulfur lupine*. These poisonous varieties can kill sheep and cause serious birth defects when consumed by pregnant cows such as cleft palates, crooked legs, and distorted or malformed spines.

Amaranth is used for grain production. The species used include love-lies-bleeding, red amaranth, and Prince-of-Wales feather. Spiny amaranth, also known as spiny pigweed, redroot pigweed, and Palmer amaranth are all classified as true weeds and hard to control in pastures. Palmer amaranth is high in nitrate and potentially toxic to cattle. Know which species of amaranth you have before allowing cattle to graze.

Other plants can cause metabolic disorders such as bloat. Bloat is the condition that occurs when a ruminant consumes feeds that produce thick, foamy gas that the animal cannot pass. Froth builds in the rumen and causes discomfort. The condition can be fatal.

Glucosinolates are natural compounds that give plants a bitter taste. They can interfere with thyroid function, cause liver and kidney lesions, and reduce mineral uptake. Inhibited iodine uptake can result in goiters.

Grass Tetany, aka *grass staggers* or *wheat pasture poisoning*, is characterized by low magnesium levels in the blood. It causes staggers, convulsion, coma and even death. Prevent grass tetany by supplementing magnesium and grazing high-risk pastures with steers, heifers and dry cows instead of older, lactating cows.

Nitrate Toxicity occurs when plant nitrate is converted to nitrite in the rumen. Symptoms include staggering gait, rapid pulse, labored breathing, frequent urination, collapse, abortion in pregnant cows, coma and/or death.

Polioencephalomalacia (PEM**)** occurs when high levels of dietary sulfur create hydrogen sulfide gas in the rumen. This can lead to brain lesions and PEM. Signs include muscle incoordination, circling, stupor, blindness, facial tremors, recumbency, convulsions, and death.

Prussic Acid Poisoning can occur rapidly on high-risk forages and can result in sudden death. Symptoms include staggering, gasping, trembling muscles, convulsions and respiratory failure. Mucous membranes in the mouth and eyes may turn blue. It can also be diagnosed by cherry red blood at death. Avoid grazing on forage with new growth that produces high levels of prussic acid or after a light freeze.

Sweetclover Poisoning can be associated with coumarin, a substance that's converted to dicoumarin in spoiled or damaged sweet clover. It interferes with vitamin K metabolism and blood clotting and can result in hemorrhaging. Reduce your cattle's risk of sweet clover poisoning by not feeding moldy sweet clover hay and planting low-coumarin clover varieties.

Cover crops that can cause metabolic disorders: Brassicas (Kale, Rapeseed, Swede, Turnip, Canola and Mustard). Maladies associated with brassica grazing include polioencephalomalacia, hemolytic anemia, pulmonary emphysema, nitrate poisoning, bloat, and metabolic issues associated with glucosinolates. Nitrate toxicity is also possible with brassicas. Canola increases the risk of PEM.

Small Grains (Barley, Oats, Rye, Ryegrass, Wheat, Triticale**)**. Rapid growing, lush grasses can lead to grass tetany when grazing cattle. High-protein grasses may contribute to bloat. Nitrate toxicity risk increases with heavy nitrogen fertilization of cool-season grasses.

Legumes. Grazing cattle on sweet clover, yellow clover, and white clover puts them at risk for sweet clover poisoning. Bloat is another concern with grazing legumes and clover. Annual lespedeza, birdsfoot trefoil, medics, and sainfoin can cause bloat. Some birdsfoot trefoil species may also contain high levels of prussic acid.

Sorghum, Sudans, Millets and Corn. Four main categories of sorghum and millets are grain sorghum, forage sorghum, sudangrass and sorghum-sudan-grass hybrids. These all put grazing cattle at risk for prussic acid HCN poisoning. Curing removes prussic acid from sorghum hay but leaves nitrates as a risk to cattle. Nitrate toxicity can be a problem with grazing pearl or foxtail millet. Corn and sorghums have also been associated with nitrate toxicity. Test forage before grazing or using for hay.

For the entire publication, check out MF 3244-Grazing Management: Toxic Plants