Reptiles: more sensetive to Cyanide

Horse: more sensetive to Ionophore, Sorghum, centaurea, Slaframine

Cattle: more senstive to Oak, Ponderosa pine, Cyanide, but resestance to centaurea

Sheep: more sensetive to Halogeton and Lupine, but resistance to Salt

Goat: more resistance to Tannins (Oak)

Pig: more sensetive to salt

-CNS signs: Lead, urea, Chlorinated (bad LUC)

- Cardiomyopathy: Gossypol, Ionophore, Lymph sarcoma and Vit. E and Selenium deficiency,

- Myocardial fibrosis: Copper deficiency, cassia poisoning (coffee senna)

- Diazepam: Rx

Organophosphate (OPP), Carbamate toxicity, Chocolate toxicity

- P 51- LD50: the dose that is lethal to 50% of a test group. Lower LD50 is more toxic than a higher LD50

- Organophosphate toxicity (BCSE):

Same clinical signs as carbamate. Remember SLUDDE: salivation, lacrimation, urination, defecation, dyspnea and emesis. Treatment include emesis, activated charcoal, seizure control (diazepam, phenobarbital or pentobarbital), pralidozime chloride (2-PAM) and atropine

- Carbamates {insecticides} (BCSE): clinical signs as they inhibit the acetylcholinesterase at nerve synapses and neuromuscular junction. SLUD: Salivation, Lacrimation, Urination and Defecation.

- Permethrin / pyrethroid toxicity: found in some brands of topical flea treatments for dogs, but highly toxic to cats. Rx with Methocarbamol

- Methylxanthine alkaloids/ Chocolate toxicity (BCSE): such as theobromine, theophylline and caffeine. Present in chocolate! After Valentine’s Day or Halloween. See excitement, seizures and arrhythmias.

Rx. Diazepam and Lidocaine drip

- Urea toxicity/ Non –protein nitrogen (NPN) / ammoniated feed toxicity: Bovine bonkers causes wildly aberrant behavior, CNS (tremors) and acute death. Rx. Rumen infusion with gallon cold water and VINEGAR (acetic acid) to decrease rumen PH which slows absorption of unionized ammonia

- Quercus spp (oak) toxicity:

Tannins (gallotannin) and phenols are the toxic agents. HEPATO AND RENAL TOXICITY (pale swollen kidneys and peri-renal edema). Goats are more resistant, but Cattle are most commonly affected. If Cows ingesting oak during months 3-7 of gestation may deliver calves with congenital abnormalities, "acorn calf". Characteristics of an acorn calf are short legs, abnormal hooves, a short nose, and a long narrow head. Oak is lethal to young calves. Happens consumption of large amounts of buds, leaves or acorns over 2-3 days. Prevent consumption of plants by providing adequate feed, especially, during Spring Quercus and times of drought in areas where oak trees are prevalent.

- Halogeton spp and Rumex sp (dock)/Oxalat toxicosis: leads to oxalate calculi in small ruminants and cattle. Sheep is most affected. Oxalate toxicity found in Sarcobatus vermiculatus (greasewood), Oxalis (sorrel), Rumex (dock), Halogeton, sugar beet, Amaranthus (pig weed) and Chenopodium (lambsquarter). It is also produced by Aspergillus Niger in molds. Oxalate binds to calcium in the rumen or in the body fluids, leading to death attributed to hypocalcemia or kidney failure by calcium oxalate crystals in the renal tubules.

Two toxic agent cause hemorrhagic diarrhea (Arsenic, Lead)

-Aresenic toxicity: severe GI signs, including a hemorrhagic diarrhea. Cattle are exposed to arsenic by pesticide-contaminated foliage. Pets find arsenic in ant baits and in pressure-treated wood (like on backyard decks) or wood preservative.

Rx Dimercarprol (BAL) deep IM, or Succimer. If signs worsen with 2 hours give (IV sodium thiosulfate, IV fluid to prevent dehydration and maintain renal function), can use

-Lead toxicity: due to paint of old house, lead curtain, stained glass and lead solder. Diarrhea or constipation. CNS signs (encephalopathy, blindness, and head pressing). Blood work shows basophilic stippling (punctate basophilia, is the presence of numerous basophilicgranules that are dispersed through the cytoplasm of erythrocyte in a peripheral blood smear). Rx. By Ca-EDTA to chelate lead.

Caged birds toxicities

- Zinic toxicity: Common in birds by clavanized cage wire or other shiny metal to prevent rusting. In dog by ingestion pennies, batteries, paint. X ray in P 167

- Zinc deficiency: in pig called parakeratosis non-pruritic. Rx by add zinc in diet. Resemble exudative dermatitis (greasy pig disease – Staphylococcus hyicus). However, exudative dermatitis is in young suckling piglets, and treated by antibiotics

- White Muscle Disease (BCSE): sudden death and endocardial plaques in young calf, lamb or kid with history of recent vigorous exercise. To try to prevent it, treat animals with vitamin E and Selenium.

- Iron poisoning is specific problem in new born piglets due to over dose by iron injection

- Copper Deficiency:

Copper deficiency, which presents with ADR Ain't Doin' Right signs: ACHROMOTRICHIA (depigmented hair, especially around eyes= "SPECTACLES") rough coat, decreased milk yield, lameness and decreased fertility, libido and gastroentritis "Peat Scours/Teart" (severe scours with gas bubbles) and myocardial fibrosis. Rx both with Cu injections and supplement diet. If molybdenum content of forage over 5 ppm, can use 1% copper sulfate (CuS04-SH20) in salt to get Cu levels back up

- Molybdenum toxicosis/ secondary hypocuprosis secondary deficiency in copper:

It is not common in cattle. Presents as "enzootic ataxia" or "swayback" in lambs less than one month old-ataxia and stiffness of the hind end. Rx is copper sulfate and removal of molybdenum if possible. Prevent with

copper: molybdenum ratio of 6:1.

-Copper toxicity: On Necropsy fined gun-Metal grey Kidneys, port- Wine colored urine

-Cyanide toxicity (BCSE):

1- Seeds of apples, apricots, cherries, peaches, plums, the jet berry bush, Sorghum (Johnson grass) and برقوق Prunus species (fruit tree) contain cyanogenic glycosides. Ruminants and reptiles are more sensitive. Clinical signs include excitement, rapid respiration, dyspnea, salivation, muscle fasciculation, spasms, staggering, collapse and death. Key finding include bright red blood (cherry color), bright red mucous membranes and rumen gas smelling like bitter almond. Treatment include Sodium nitrite and Sodium Thiosulfate

2- Sorghum (Sudan Grass, Johnson grass, Milo) (BCSE): can cause neurologic toxicity, primarily in horses. Clinical signs CNS include: posterior incoordination (swaying rear limb gait, knuckling) and urinary incontinence (drippling), secondary to a lower motor neuron myelomalacia of the nerve roots. It can also cause cyanide toxicity.

-Toad poising: cause oral irritant, profuse salivation, pawing at the mouth, and head shaking

-raising and grapes: cause anuric renal failure (Anuria, sometimes called anuresis, is nonpassage of urine, in practice is defined as passage of less than 100 milliliters of urine in a day. Anuria is often caused by failure in the function of kidneys. It may also occur because of some severe obstruction like kidney stones or tumours)

- Rotten salmon: (GI upset) with salmon poisoning, a systemic infectious disease of dogs that usually occurs 5-7 days after eating infected fish.

- Cantharidin toxicity: from blister beetle (epicauta spp.) that swarm (proliferiate) in alfafa hay. Cantharidin is a potentent irritant causing colic, renal disease, hematuria, hemorrhagic gastritis, dark injected mucous membranes and preacute death

- Ionophore (Monensin, Lasalocid) toxicity: Heart is the most affected Organs

In horse: is the most sensitive. Rhabdomyolysis and cardiomyopathy. Pale myocardium, hemopericardium, epicardial hemorrhages. Increase CK (creatine kinase) due to Muscle damage. In HORSES look for HISTORY OF EATING CATTLE FEED. See anorexia, colic, stiffness "tying up", tachycardia, posterior paresis, high creatine kinase (skeletal muscle necrosis). Then see cardiomyopathy, HEART FAILURE

Rhabdomyolysis is a serious syndrome due to a direct or indirect muscle injury. It results from the death of muscle fibers and release of their contents into the bloodstream. This can lead to serious complications such as renal (kidney) failure. This means the kidneys cannot remove waste and concentrated urine

In cattle find Ascites, hydrothorax, pulmonary edema

Feed concentrations as low as of 100 g/ton and 400 g/ton have been fatal to sheep and cattle, respectively

Rx. No antidote that reverse signs, slow absorption with charcoal or mineral oil

-Bracken fern toxicity /Enzootic hematuria: Pteridium aquilinum, It Contains thiaminase, which cleaves vitamin B1 and Ptaquiloside that is carcinogenic and leads to bone marrow suppression. Thiamine (B1) deficiency leads to polioencephalomalacia

Thiamine (B1) deficiency leads to polioencephalomalacia. Clinical signs in large animals include incoordination, standing with legs apart, depression, muscle tremors, ataxia, blindness, retinal degeneration and staggers in horses

Cattle: hematuria, and aplastic anemia. . Ptaquiloside in ruminants leads to bone marrow destruction, hemorrhage, anemia, enzootichematuria and tumors in the bladder

Horse: Associated with thiamine deficiency cause neurological disease

Treatment include discontinue exposure, thiamine supplementation and blood transfusion.

- Acetaminophen or Tylenol Toxicity/Onion or garlic toxicosis:

Cats fed an exclusive diet of baby foods: cyanosis, brown blood,

and Methemoglobinuria (dark brown urine), Oxidative damage to RBCs causes Heinz body anemia, hemolysis. More frequent in cat because it lack glucuronyl tranferase so can't metabolize NSAID as aspirin, acetaminophen and Ibuprofen.

Rx 1-vomating by Apomorphine IV, IM, or under conjunctiva/xylazine or dexmedetomdine and gastric lavage (activated charcoal) with 4 hours Ascorbic acids, and Cimetidine for dogs only! Most common cat toxicity

2-N-acetylcysteine which provides a sulfhydryl source to hepatocytes and erythrocytes, thus decreasing oxidative damage from the acetaminophe.

3-Monitring methemoglobinemia (every) 2-3 hours and liver enzyme every 12 hours

- Ethylene glycol (BCSE): present in antifreeze:

Stage I (30min-12h post) – neurological phase with knuckling, ataxia, vomiting and drunken behavior.

Stage II (12-24h post) – cardiovascular phase with tachypnea and tachycardia.

Later signs also include renal failure and elevated osmolar gap (>20mOsm/kg).

Diagnosis is done by clinical signs, rapid test kit and Calcium Oxalate Monohydrate crystals in urine sediment.

Rx In dog: Fomepizole (4-methylpyrazole or 4-MP). In cats, fomepizole can be a more effective treatment than ethanol, when administered at high doses (extra-label) and within 3 hours of ingestion of EG. More than 3 hours, Ethanol 20% is the treatment of choice for cats. Both ethanol and fomepizole inhibiting alcohol dehydrogenase (ADH). Window for positive outcome is 8-12 h in dog and less than 2h in cat

- Centaurea spp / chewing disease: (yellow star thistle or Russian Knapweed) (BCSE): causes nigopallidal encephalomalacia in horses, which is basically the liquefactive necrosis of the neurons in the globus pallidus and substantia nigra. Ruminants are not affected. Affected horses cannot properly chew (chewing disease) and show involuntary

twitching and curling of lips.

- Avocado (persa Americana): toxic (Persin) to rabbits, mice and caged birds.

Cause myocardial necrosis (in mammals and birds) or sterile mastitis (in lactating mammals). Colic may also occur in horses

- Salt toxicosis (BCSE): sheep is most resistant and pigs are most sensitive. Most common in swine, cattle and poultry.

- Mycotoxicoses: Aflatoxins cause hepatic injury and failure in ruminants, swine, and horses.

- Ergot intoxication/ Ergotism (BCSE): ingestion of alkaloids in a parasitic fungus, Claviceps purpurea, which infects small grains and forage. Cause vasoconstriction with terminal necrosis of the extremities, frostbite (injury caused by freezing) and gangrene, CNS, decrease in prolactin lead to agalactia.

- Fescue mycotoxin: Ergot–like mold (neotyphodium coenophialum) present on tall fescue grass can cause lameness and hyperthermia in cattle and horses. It also causes abdominal fat necrosis (lipomatosis) in adult cattle and some deer

- Fusarium spp.

Fumonisin: a toxin from Fusarium spp causes Equine leukoencephalomalacia, hypertension.and porcine pulmonary edema (PPE). Associated with moldy corn

Zearalenone toxin: Are the only primary estrogenic effects present molds on Corn, Barley and Wheat.It responsible for reproductive dysfunction (Estrogenism and vulvovaginitis)

Deoxynivalenol: Is secondary mycotoxin lead to decrease feed intake in mold corn.

If animal is infected by Deoxynivalenol, limit exposure to Zearalenone if the anima eat less

- Trichothecenes:

Is cytotoxic mycotoxin associated with many fungi, cause Vomiting,

Immunosuppression

- Cottonseed Toxicity: also known as Gossypol toxicity. Iron helps to inactivate free glossypol pigment. Glossypol is cardiotoxic, cardiac myopathy for cattle, sheep and pigs

- Hypomagnesemia (BCSE): in cattle is present as tetany along with hyperexcitability, ataxia, convulsion and death. Treatment IV Ca/Mg combo (like in Milk fever – hypocalcemia)

- Slaframine toxicosis/black patch disease. Rhizoctonia leguminocola fungus on red clover. Causes profuse salivation, oral irritation, retching and sometimes vomiting, primarily in horses and occasionally in cattle.

-Chlorinated Hydrocarbons (like lindane, methoxychlor): present in insecticides and cause CNS depression or stimulation (convulsive seizures).

- Paradichlorobenzene: organochloride insecticide that mainly causes CNS signs (tremors, salivation, ataxia and seizures) and is found in deodorant cakes in diaper buckets, garbage cans and in bathrooms

- Anticoagulant rodenticides: include warfarin, brodifacoum, bromdialone and diphacinone. They inhibit vitamin K dependent factors (II, VII, IX and X). Clinical signs: hemorrhage (usually hemoabdomen), pale and dry mucous membrane, tachycardia and weak pulse. Diagnosis: markedly prolonged prothrombin time (PT). Treat with emesis, activated charcoal +/- sorbitol and vitamin K1 for 4 weeks OP.

Sulfa drugs: can displace the anticoagulant from plasma binding sites leading to increased free toxicant and increased toxicosis

- Bromethalin rodenticides: inhibit ATP production in neurons, which causes tremors, seizures, hyperexcitability and hyperthermia. Treatment: emesis, activated charcoal, diazepam, mannitol to reduce cerebral edema and incline plane 30 degrees to improve venous return.

- Cholecalciferol Rodenticide: increases intestinal absorption of calcium leading to hypercalcemia, hyperphosphatemia and organ injury. Clinical signs usually take 36 hours and include acute renal failure and cardiac arrhythmias. Diagnosis is presence of hyperphosphatemia (12h post ingestion), hypercalcemia (24h post ingestion) and azotemia (36-48h

post). Treatment: emesis, activated charcoal, loop diuretics (furosemide) or saline diuresis, corticosteroids (decrease Ca intestinal absorption and urinary retention) and biophosphonates (pamidronate) to inhibit osteoclast activity.

- Locoweed toxicosis/ High Mountain/Altitude Dz/ Brisket Dz (BCSE):

Due to Astragalus and Oxytropis ingestion leads to Swainsonine toxicity/ vetches or milk vetches and causes neurological signs (locoism) such as aggression, ataxia, depression, and circling and vision loss. Right Congestive heart failure (CHF) due to high altitude. LOCOWEED excreted in milk so calf can infect. High mountain disease has a genetic component and prognosis is good if the disease is catch early.

- Photosensitization: Congenital inherited photosensitization is seen in some breeds of cattle and sheep

Primary photosensitization: is when the component becomes photo dynamic (Caused by photodynamic substances in plants itself). Plamts such as hypericin from hypericum perfortaum (St. Johns Wort) and fagopyrin from fagopyrum esculentum (buckwheat). PRIMARY photosensitization occurs in the absence of hepatic disease when a photodynamic agent is ingested/injected/absorbed. Tetracycline is a medication that can cause primary photosensit ization

Secondary sensitization/ pyrolizidine alkaloid hepatotoxicity: caused by plant-related hepatic damage. These plants release photodynamic substances like phylloerythrin, which breakdown of product chlorophyll. Failure to excrete phylloerythrin due to liver dysfunction or bile duct lesions can lead to a buildup of phylloerythrin in the blood and skin, where phylloerythrin can absorb and release light energy, causing phototoxicity. Secondary sensitization is more common than primary. The plants most often implicated include ragwort (Senecio jacobea), woolly groundsel (Senecio redellii, Senecio longilobus), rattleweed (Crotalaria retusa), and seeds of yellow tarweed (Amsinckia intermedia). Pyrrolizidine alkaloids are one cause of secondary Photosensitization due to liver damage.

Causes of secondary Photosensitization/ Skin’s muzzle is sloughed off are:

1- Pyrolizidine alkaloid present in senecio sp., Amishinckia intermedia, Cynoglossum officinale and Crotalaria spp, which cause liver Failure

2-plants release phylloerythrin which breakdown chlorophyll

3-bile duct occlusion. 4-Mycotoxic lupinosis. 5-Facial eczema (pithomycotoxicosi

- 4-Ipomeanol toxicity (moldy sweet potato): clinically indistinguishable from Acute Bovine Pulmonary Emphysema and Edema (ABPEE, also known as Fog Fever).

- Ponderosa pine (BCSE): needles and bark contain the toxin isocupressic acid, which causes vasoconstriction and ischemia to the uterus and other tissues. Causes abortion 2-21 days after ingestion of 5-6 pound per day for 3 days. Cattle is most sensitive to it. See page 133 for more explanation

- Lupine sp (BCSE): The most common toxic cause of arthrogryposis in the calf or lamb is consumption of toxic alkaloids (anagyrine) in Lupine spp plants by pregnant dams. Adults that eat lupine may display inappetence, dyspnea, convulsions or death from respiratory paralysis. If lupines become infected with a fungus (Phomopsis leptostromiformis), mycotoxic lupinosis can cause hepatic damage. It has a teratogenic effect in cattle only, if dam eat the plant between 40-70 days of gestation causing newborn calves with Arthrogryposis (Crooked calf syndrome) have ankylosed, rigid limbs, scoliosis, kyphosis, and sometimes a cleft palate. There is no specific treatment. Most commonly affect sheep

- Sago palm: ingestion causes acute hepatic necrosis and is lethal.

- Marijuana: prolonged sedation, hypotension, bradycardia, hypothermia and mydriasis.

- Cardiotoxic plants: Oleander (nerium oleander), Foxglove (digitalis purpurea), Azalea (Rhododendron) and Lily of the valley (Donfallaria majalis). Cardiac glycosides inhibit sodium-potassium ATP pumps in myocardial cells. Effects include A-V block, increased vagal tone, decreased membrane potential, and decreased pacemaker activity. Foxglove (Digitalis spp.) extracts are used to make DIGOXIN to treat cardiac patients. Serum digoxin level can confirm diagnosis of cardiac

glycoside toxicity. Rx: Early decontamination (e.g. induce vomiting, administer activated charcoal); anti -arrhythmics; symptomatic treatment for dehydration, electrolyte abnormalities and gastrointestinal (GI) upset. Prognosis:

-Guarded if moderate to severe cardiovascular signs

-Good if GI upset WITHOUT cardiovascular signs

Other cardiotoxic plants (which contain GRAYANOTOXIN) include rhododendron, azalea, rosebay and laurels. Mechanism of action and Rx are similar to that of cardiac glycosides. Prognosis: generally good

- Veratrum spp (false hellebore, skunk cabbage): associated with cyclopia. Ingestion by ewes on day 14 of gestation will produce cyclopean lambs. Ingestion on days 19-21 results in embryonic death; days 28-32 result in defects of the limbs. Birth defects are most commonly seen in sheep, cattle, goats, llamas, and horses are all susceptible.

- Metaldehyde: occurs 1-3 hours after ingestion of snail/slug bait. See severe muscle tremors, ataxia, hyperesthesia, anxiety, tachycardia and hyperthermia. Other clinical signs include vomiting, diarrhea, opisthotonus, mydriasis and seizures. Can be rapidly fatal without immediate intervention. Treatment includes decontamination (induce emesis, administer activated charcoal), management of tremors/ seizures and supportive care.

- Hemlock poison: in conium maculatum and clinical sings include hind limb weakness, weak pulse, irregular heart rate, recumbency, coma and death. The cow's breath and urine smell like the odor of mouse urine.

- Nitrate Toxicity: present on Pigweed, Nighshade (solanum), oat hay, Sorghum, Rye and Alfalfa. Primarily problem in cattle. Nitrate causes methemoglobinemia, leading to dark brown or chocolate colored blood, gray mucous membranes, dyspnea, tremors and convulsion. Treatment: 1% of methylene blue

- Acer rubrum (red maple) toxicity: Unknown toxic principles in wilt leaves. Causes methemoglobinemia, hein body anemia, and intravascular hemolysis, weakness, polypnea, tachycardia, depression,

icterus, cyanosis, brownish discoloration of blood and urine. Affect horses

- Ester Lilly or Tiger Lilly: can cause acute renal failure in cats. Clinical signs include azotemia, weakeness, ataxia and abdominal pain. Lab work shows very high creatinine, hyperkalemia and hyperphosphatemia.

- Mothball toxicity: caused by naphthalene-containing mothballs or from paradichlorobenzene containing cakes. Clinical signs include GI signs, hemolytic anemia and Heinz bodies.

- Stringhalt gait: caused by Hypochoeris radicata (flatweed) and Lathyrus (sweet pea).

- Teratogenic effect: Griseofluvin (antifungal), Ketoconazole (antifungal) and Doxorubicin (chemotherapic) are teratogens, especially for cats and horses. Oak toxicity (acorn calf) and Lupinea (arthrogryposis in calfs) and skunk cabbage (cyclopedia in lambs).

- Aflotoxicosis: toxigenic strains of Aspergillus flavus and A parasiticus on peanuts, soybeans, corn (maize), and other cereal grains. Clinical signs in acute cases include liver damage, widespread hemorrhages, iceterus and death. Subacute signs include depression, weakness, anorexia and unthriftiness. Treatment: take animals off feed and provide an effective binder for aflatoxins, such as hydrated sodium calcium aluminosilicates (HSCAS).

- Alkaloids toxicity: present in Delphinium spp. (larkspur), Rhododendron spp (azaleas) or Solanum spp. (nightshade). It causes both cardiac arrhythmias and severe gastric distress.

- Alsike clover (Trifolium hybridum): also known as “dew poisoning” causes two syndromes in horses: photosensitivity (trifobiasis) and Alsike clover poisoning (“big liver disease”). The toxic principle is an unidentified phototoxin. Photosensitivity has been reported in horses, sheep, cattle, and pigs. Clinical signs include reddened skin after exposure to sun, followed by dry necrosis of the skin or edema and serous discharge. The muzzle, tongue, and feet are frequently affected. If the stomatitis is severe, anorexia and weight loss develop. If not treated it can be fatal due to hepatic failure and neurologic disturbances. Colic, diarrhea, and other signs of GI disturbances have been noted. Affected horses may be markedly depressed or excited. Diagnosis: serum chemistry alterations

include increased GGT and AST activities and hyperbilirubinemia, with direct bilirubin frequently being ≥25% of the total, history and and multiple animals on a farm or in an affected area. NO ZUKU

- Black walnut toxicity: Horses are more susceptible. When used as bad black walnuts can cause acute onset of laminitis, which may progress to necrosis of dorsal laminae, distal limb edema and fever. You can see a picture in the side!

- Blue-green Algae: hepatotoxicosis after the ingestion of cyanobacteria.

- Carbophenothion: used to control parasites on sheep and a single dose is lethal to cats.

- Fishmeal: can be potentially toxic and allergenic. Ethoxyquin is a preservative in fishmeal that may have toxic hepatic effects. Fish meal also contains mercury, which can cause neurological disturbances.

- Household Cleaners: acids and alkalis that cause caustic or corrosive lesions respectively. Treatment administer milk or water, GI protectants for several days and monitor for ulcers. Do not induce vomit or administer activated charcoal

- Hypoiodinemia: caused by goitrogenic plants (soybenas, cabbage, rape, kale and turnips) that do not allow iodine uptake by the body. Pregnant dams that eat goitrogenic plants may birth foals with hyperplastic goiter and hypothyroidism

- Kleingrass (Panicum coloratum): produce toxicosis in horses and ruminants. Sapogenin content (toxic principle). Clinical signs include icterus, photosensitivity, intermittent colic and fever, weight loss, and hepatic encephalopathy. Diagnosis: Bilirubin, γ-glutamyl transpeptidase or transferase (GGT), and blood ammonia concentrations are increased, history of exposure to plants and multiple affected animals on a farm or in an area. Affected animals should be removed from the kleingrass source, fed good-quality hay, and protected from sunlight. Local treatment of the photodermatitis with antimicrobial or softening creams may be needed in severe cases.

- Imidacloprid: is a neonicotinoid insecticide that can be applies in dogs and cats. NO ZUKU

- Painting and Varnishing products: Treatment administer milk or water, GI protectants for several days and monitor for ulcers. Do not induce vomit or administer activated charcoal.

- Penitrem A: present in moldy garbage containing Aspergillus spp. Clinical signs include painting, restlessness, hypersalivation, incoordination, fine motor tremors and seizures. Treatment includes gastrointestinal decontamination (emesis if possible), activated charcoal, methocarbamol (robaxin) for muscle tremors, diazepam (for seizures) and GI protectants (sucralfate or H2 blockers).