### Respiratory Toxicities



### Respiratory Toxicities

#### Problems

- Dyspnoea, lethargy, weakness
- Coughing, pallor, anorexia
- Vomiting
- Mucous membranes
- Pale, Red or Brown

### Respiratory Toxicities

#### Differential diagnoses:

- Nitrites, Onions, Paracetamol
- Methaemoglobinaemia
- Cyanide
- cytochrome oxidase complex
- Carbon monoxide (CO)
- Carboxyhaemoglobin

### Respiratory Toxicities

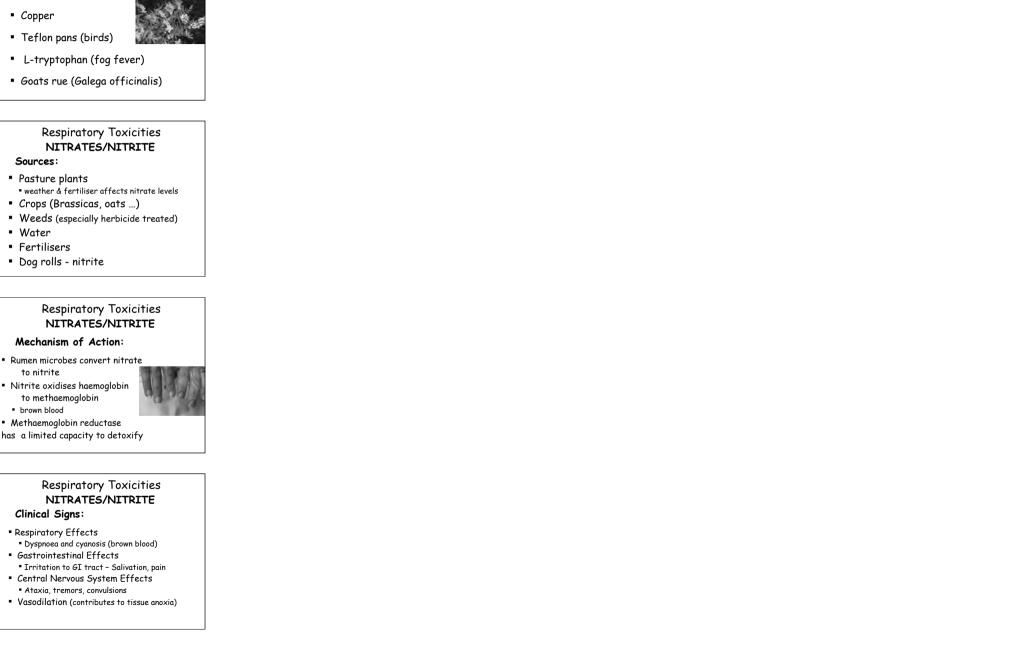
#### Differential diagnoses:

- Anticoagulant Rodenticides
- Paraquat
- Selenium
- Zinc Phosphide (Mg & Al phosphide)

#### Respiratory Toxicities

#### Differential diagnoses:

- to methaemoglobin



### Respiratory Toxicities NITRATES/NITRITE

#### Diagnosis:

- History (pasture, crop, weather)
- Clinical Signs (brown blood, sudden death)
- Diphenylamine test on plants
- aqueous humour up to 60 hours PM
- Plant Samples to laboratory to quantify

### Respiratory Toxicities NITRATES/NITRITE

#### Treatment:

- Do NOT stress the animals
- Provide safe feed (hay or pasture)
- Methylene blue
- converts methaemoglobin back to oxyhaemoglobin
- Issues long withholding time

#### Respiratory Toxicities

#### PARAQUAT

- Sources Herbicide usage
- Toxicity
- dog 25-50 mg/kg
- diquat is 100-200 mg/kg
- Pathogenesis
- irritant orally or dermally
- accumulates in the lungs
- fibrosis due to superoxide radicals that induce lipid peroxidation

## IWD PARAQUAT

#### Respiratory Toxicities

#### PARAQUAT

- Absorption poor 20%
- Lung concentrates
- alveolar cells 10X levels
- Excreted in urine
- generally unchanged
- after 24-48 hours not detectable





# Respiratory Toxicities PARAQUAT - Clinical Effects

- Oral lesions-irritation, blisters
- 3 phases in acute poisoning
- 1) Caustic action
- Vomiting
- Abdominal pain
- 2) Renal injury + hepatocellular necrosis by 2<sup>nd</sup> or 3<sup>rd</sup> day
- 3) Pulmonary Fibrosis
  - poor prognosis



#### Respiratory Toxicities

#### PARAQUAT - Diagnosis

- History of exposure
- Collect urine within 24 hours of exposure
- Plasma levels up to 30 hours
- Lung levels detectable 4 days

# Respiratory Toxicities PARAQUAT TREATMENT

- Early decontamination
   Repeat Activated Charcoal
- Fluid therapy (diuresis)
- captopril? within 1 hour
- DO NOT give Oxygen!
- Anti-oxidants Vit E, C
- N-Acetyl cysteine





#### Respiratory Toxicities

#### SUMMARY

- Early decontamination
- Nitrate/nitrite
  - Methylene blue
- Paraquat
  - NAC, Anti-oxidant therapy?