

Hepatic Toxicities



Hepatic Toxicities

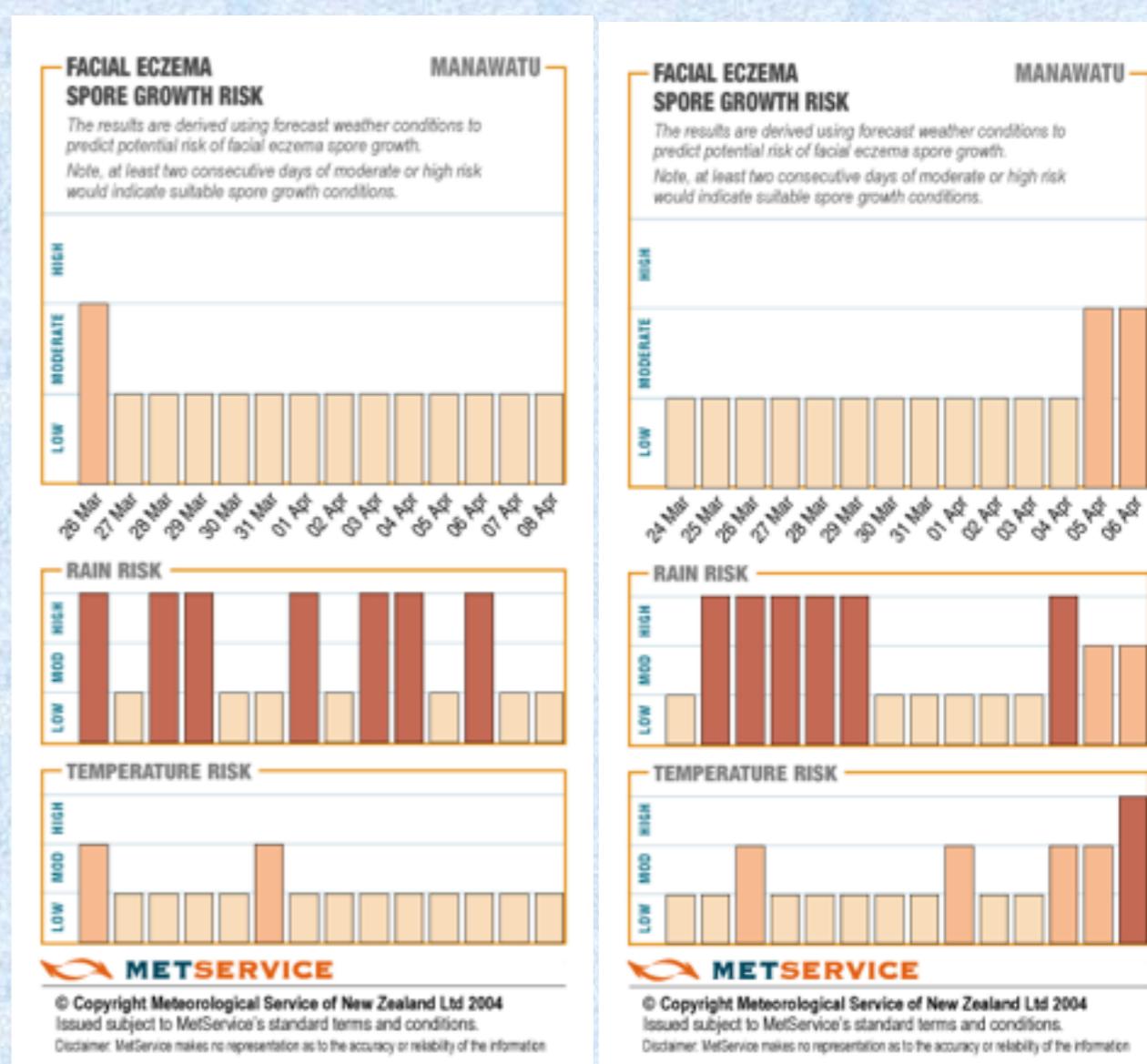
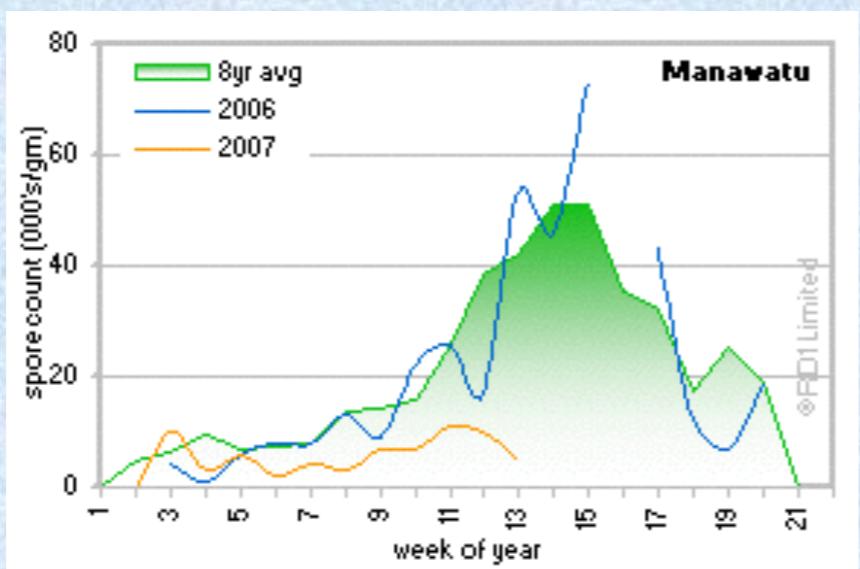
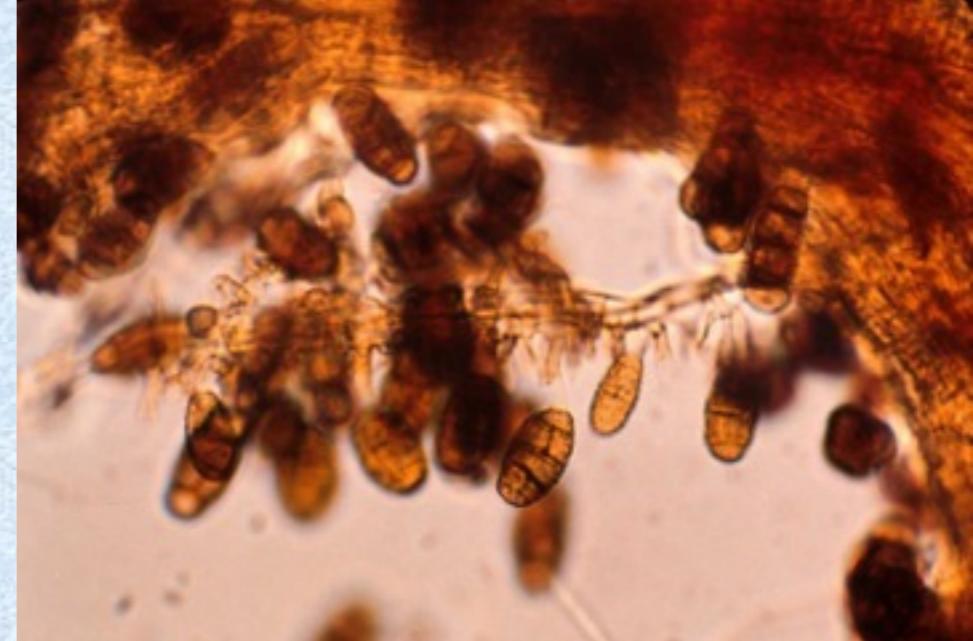
Differential diagnoses:

- Paracetamol (small animals)
- Phosphorised pesticides (LA & SA)
- Facial Eczema (LA)
- Ragwort - pyrrolizidine alkaloids (LA)
- Blue green algae (*Microcystis* spp)
- Xylitol (dogs - sweetner)

Hepatic Toxicities

FACIAL ECZEMA

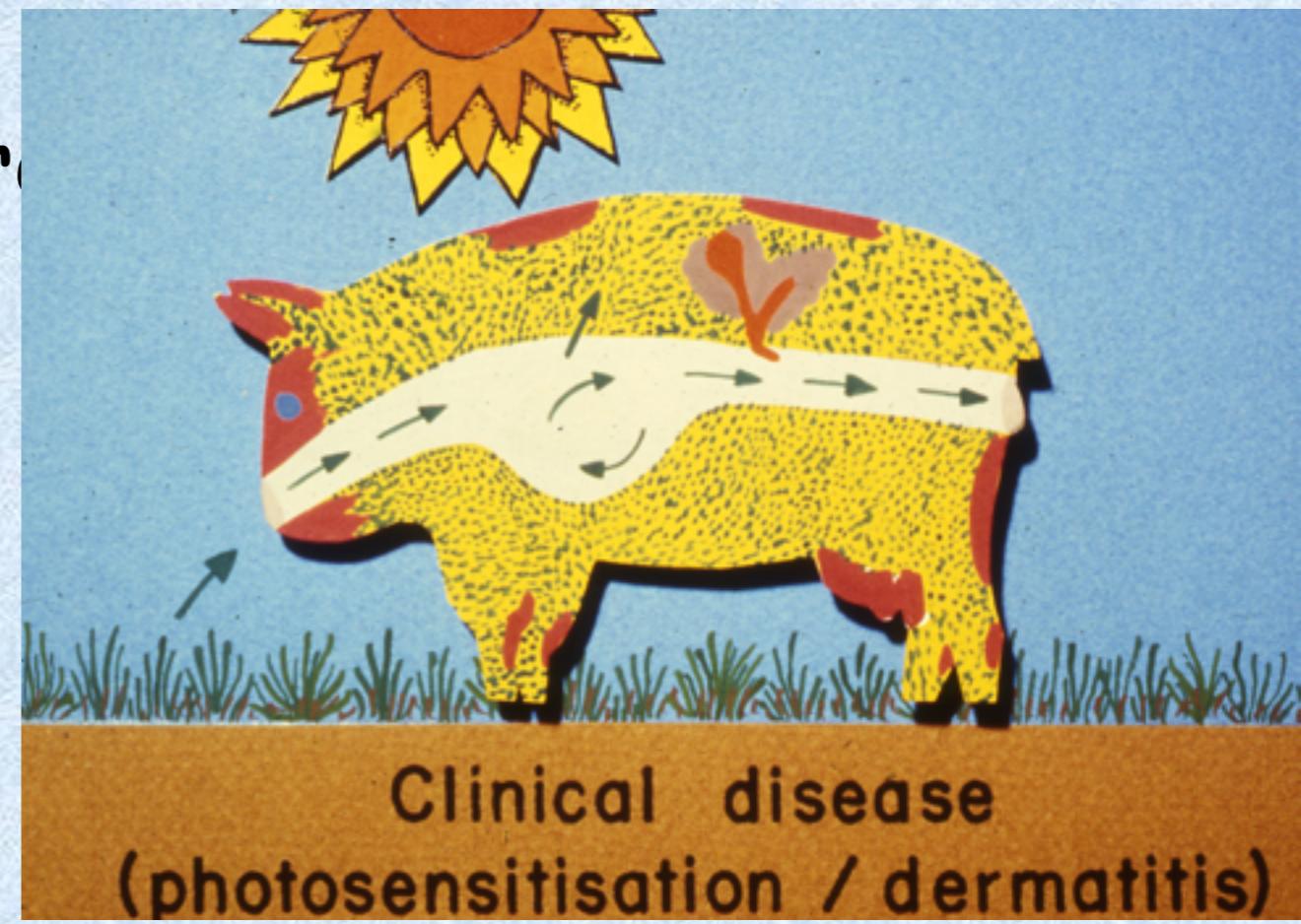
- *Pithomyces chartarum*
- now *Leptosphaerulina chartarum*
- Sporidesmin toxin
- Ryegrass pastures
- Weather related



Hepatic Toxicities

FACIAL ECZEMA

- Mechanism of action
 - Grazing of fungi-infested pastures
 - Ingestion of fungal spores containing sporidesmin
 - Concentration of sporidesmin in liver and hepatic bile



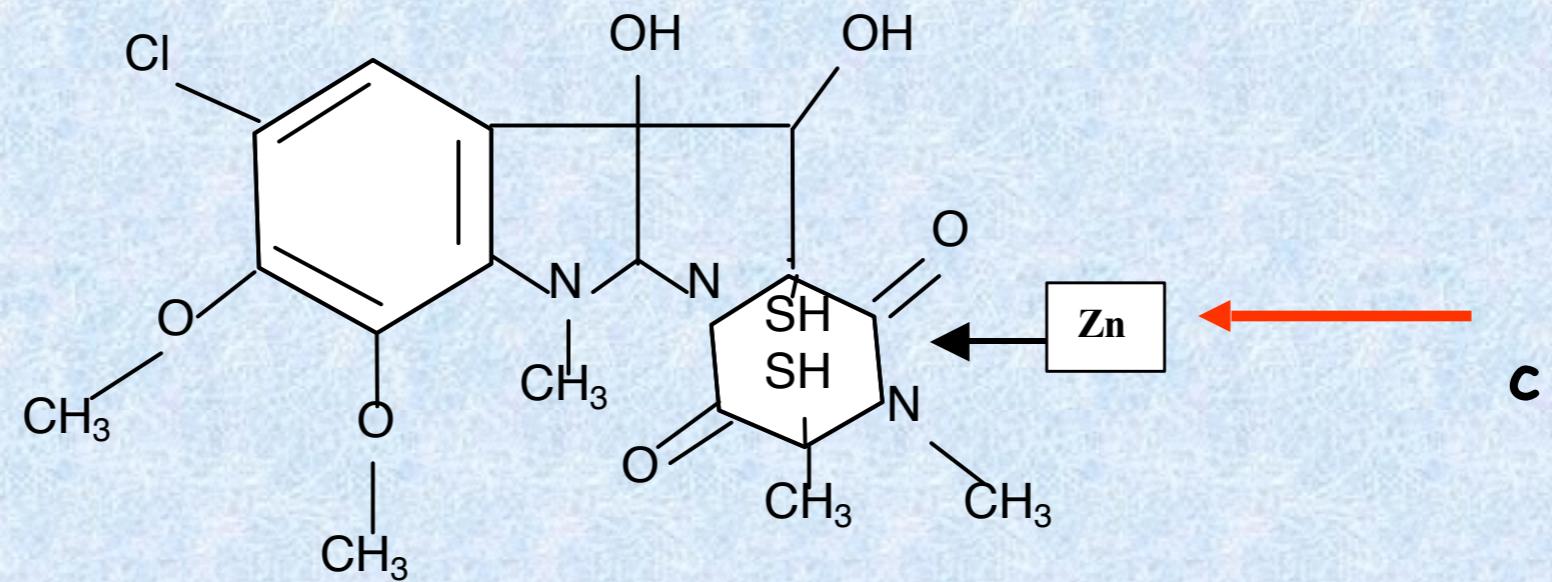
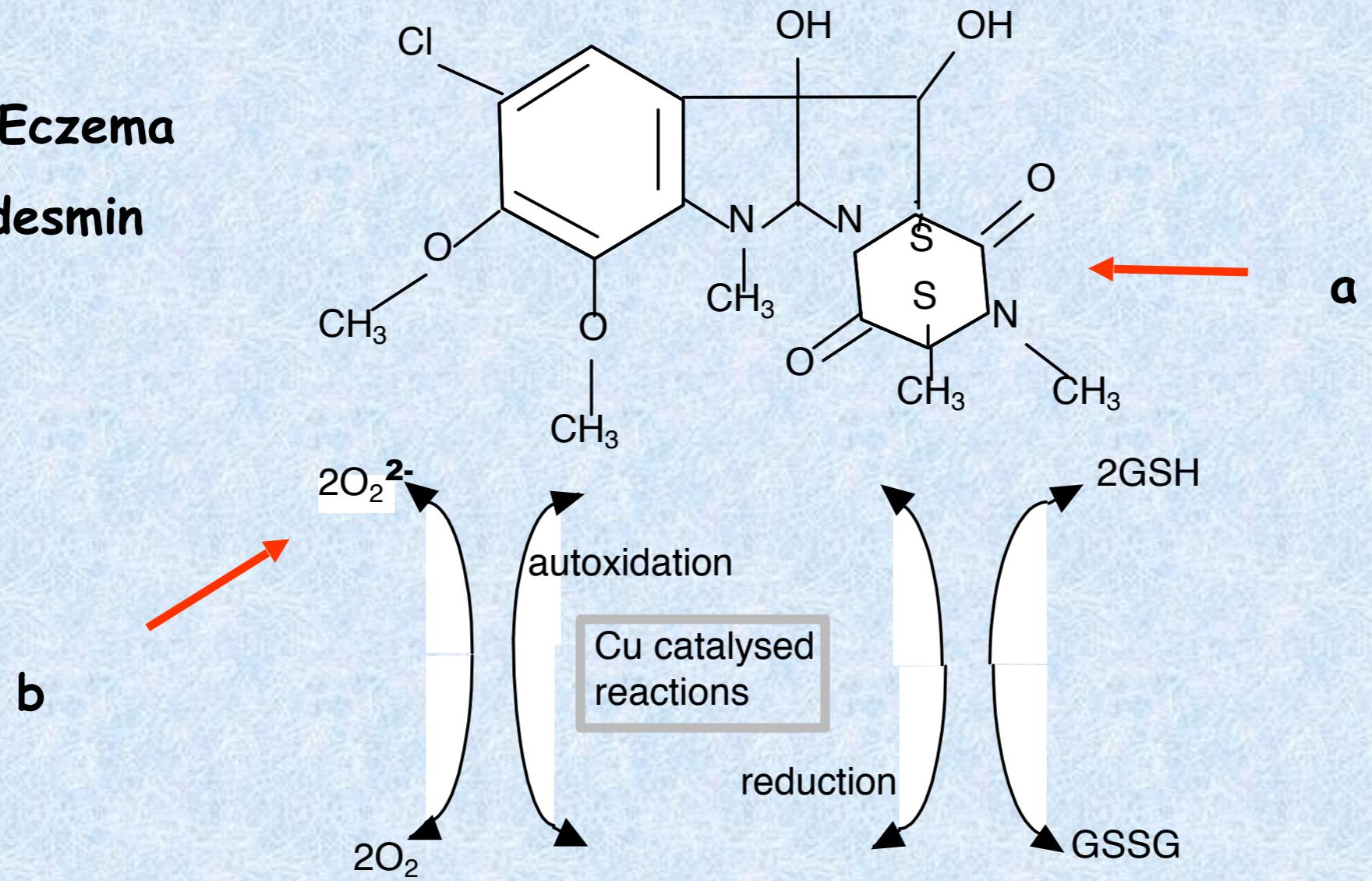
Hepatic Toxicities

FACIAL ECZEMA

- Mechanism of action
 - Cycle of oxidation and reduction
 - Superoxide radicals form
 - Hepatic ductular epithelium injury
 - Biliary system obstruction (pericholangitis)
 - Inability to excrete phylloerythin

Facial Eczema

sporidesmin



Hepatic Toxicities

FACIAL ECZEMA

- Clinical disease
 - pericholangitis
 - jaundice
 - photosensitivity
 - illthrift



Hepatic Toxicities

FACIAL ECZEMA

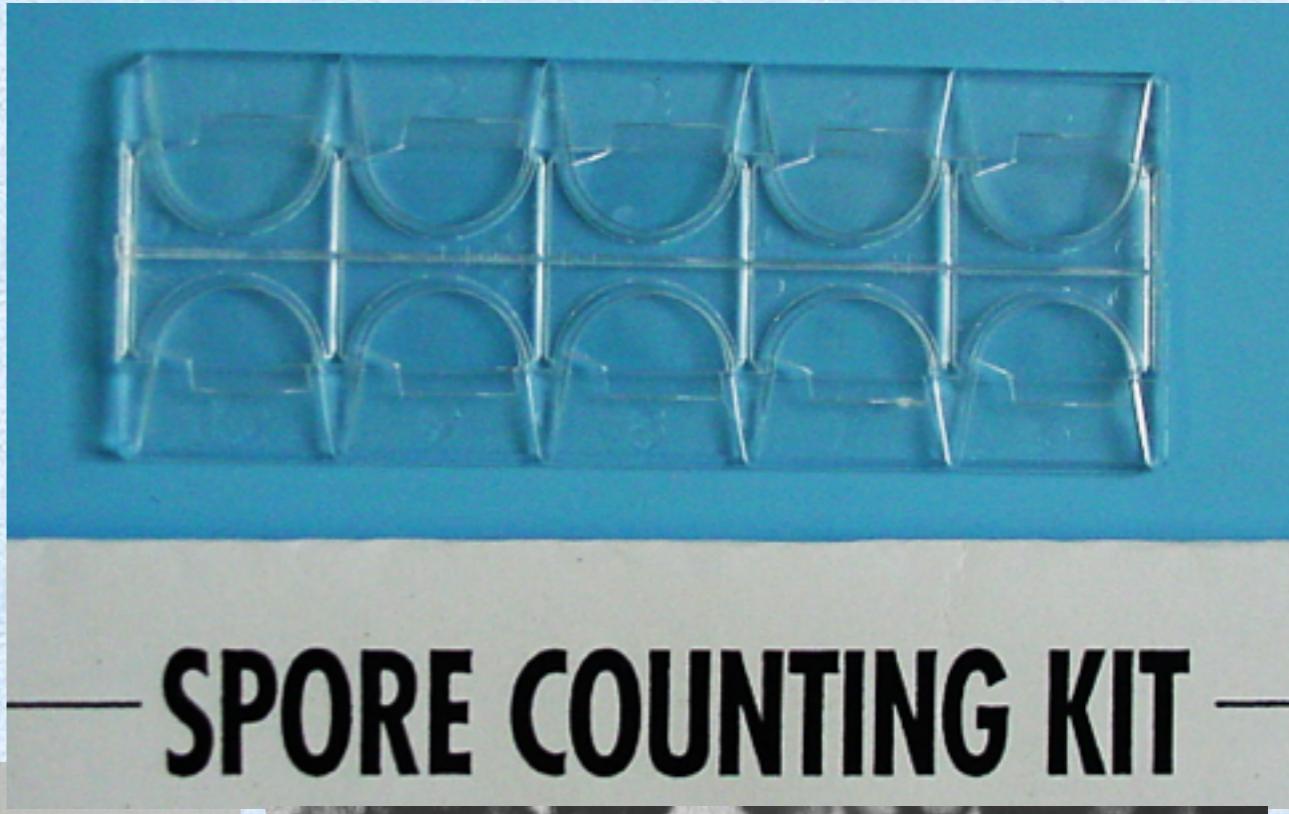
- Post mortem changes
 - boxing glove liver



Hepatic Toxicities

FACIAL ECZEMA PREVENTION

- Monitoring
- Spore counts on pastures



PRODUCTS REQUIRED:

Use Shooft monocular microscope

Shooft code: MXJX14

with 5 X eyepiece = 80 X mag.

Spore Counting Kit -5 pack

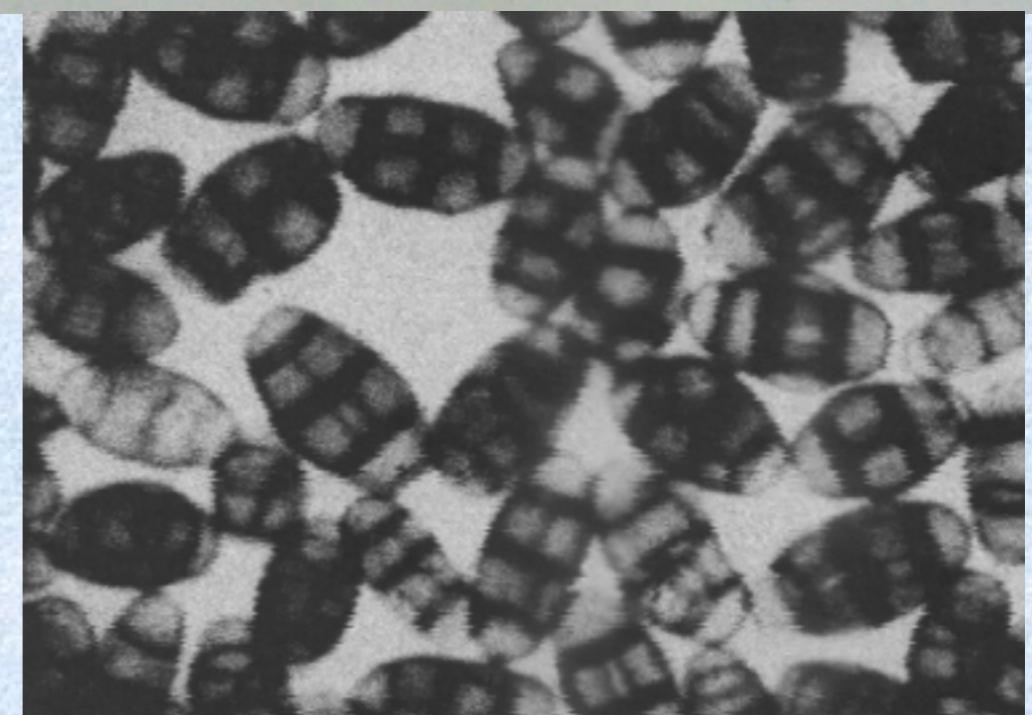
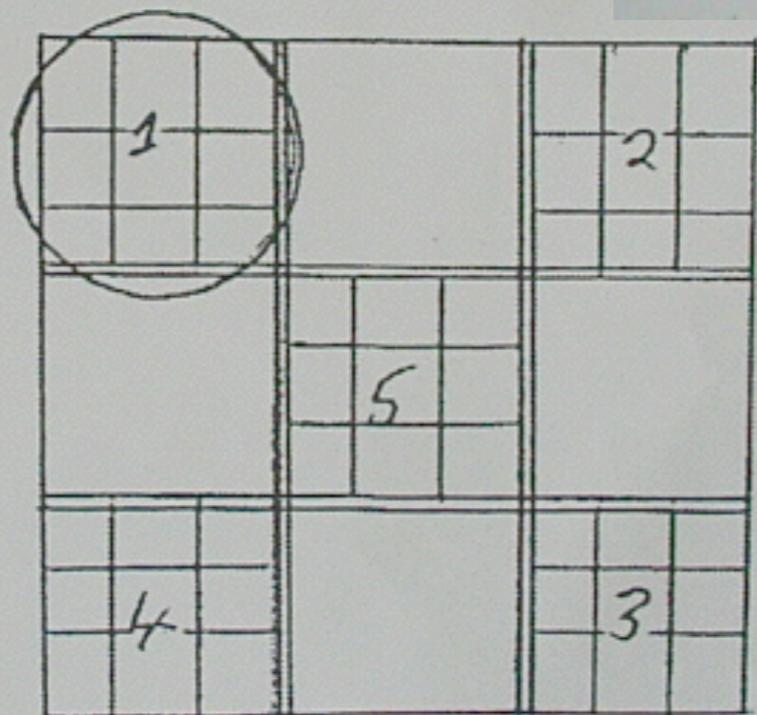
Shooft code: SCK5

Count corner and centre squares.

The small grid lines within the squares are to help counting only. In other words count all spores in the field of view (see 1.).



Facial eczema spores look like miniature hand grenades!



Hepatic Toxicities

FACIAL ECZEMA PREVENTION

- Breed for resistance
- Pretreat with zinc
- Pasture treatment with fungicides
- Treatment-Symptomatic



zinc oxide capsule



Gastrointestinal-Hepatic Toxicities

PARACETAMOL

Also known as ACETAMINOPHEN

- Depletes glutathione
 - glycine, glutamine & cysteine
- Oxidative injury
 - dogs-liver
 - cats-RBCs

Gastrointestinal-Hepatic Toxicities

PARACETAMOL-DOGS

- Vomiting, Anorexia
- Tachycardia, Tachypnoea
- Abdominal pain
- ± Methaemoglobinaemia @ higher dose
- Facial and paw oedema @ higher dose

Gastrointestinal-Hepatic Toxicities

PARACETAMOL-DOGS

- Acute hepatic centrilobular necrosis
 - 24-36 hours post ingestion
- * Not known to cause renal injury in dogs and cats but reported in humans

Gastrointestinal-Hepatic Toxicities

PARACETAMOL-CATS

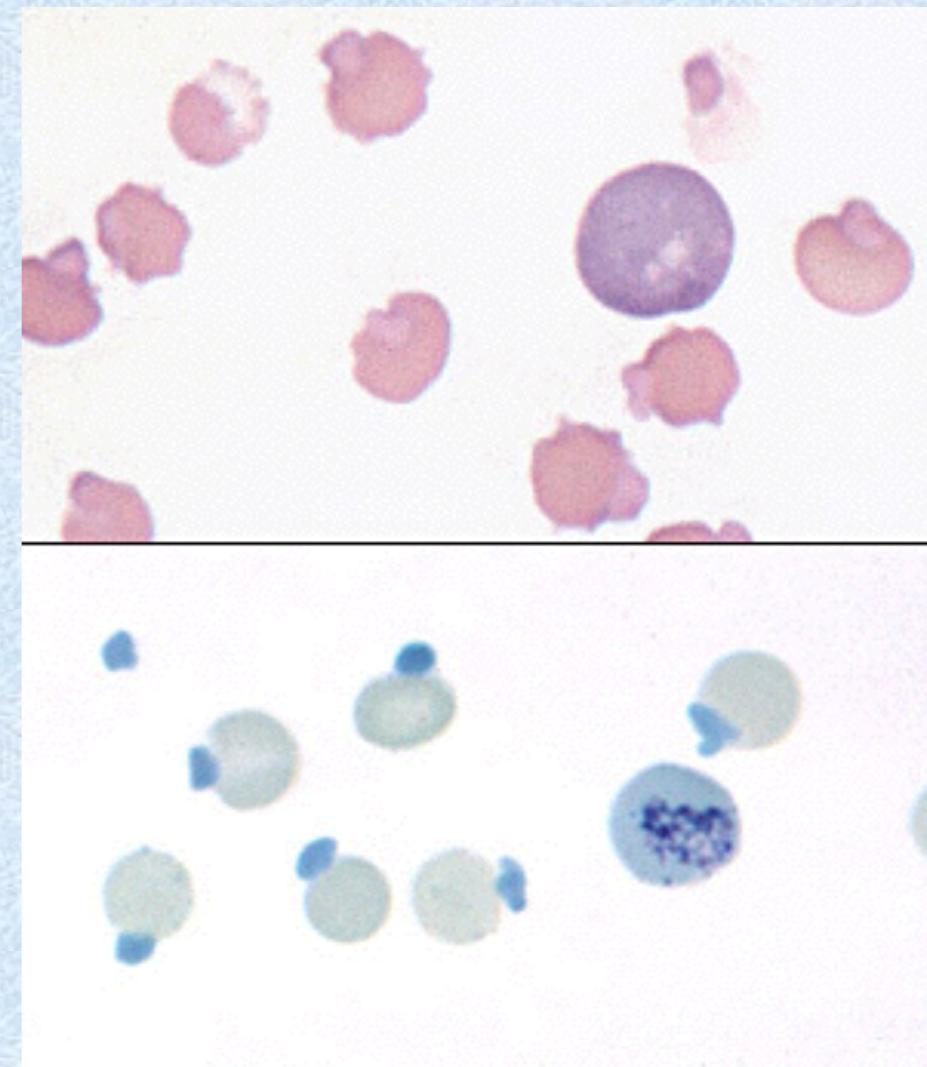
- Cyanosis
- Vomiting
- Dyspnoea
- Oedema, face + paws



Gastrointestinal-Hepatic Toxicities

PARACETAMOL-CATS

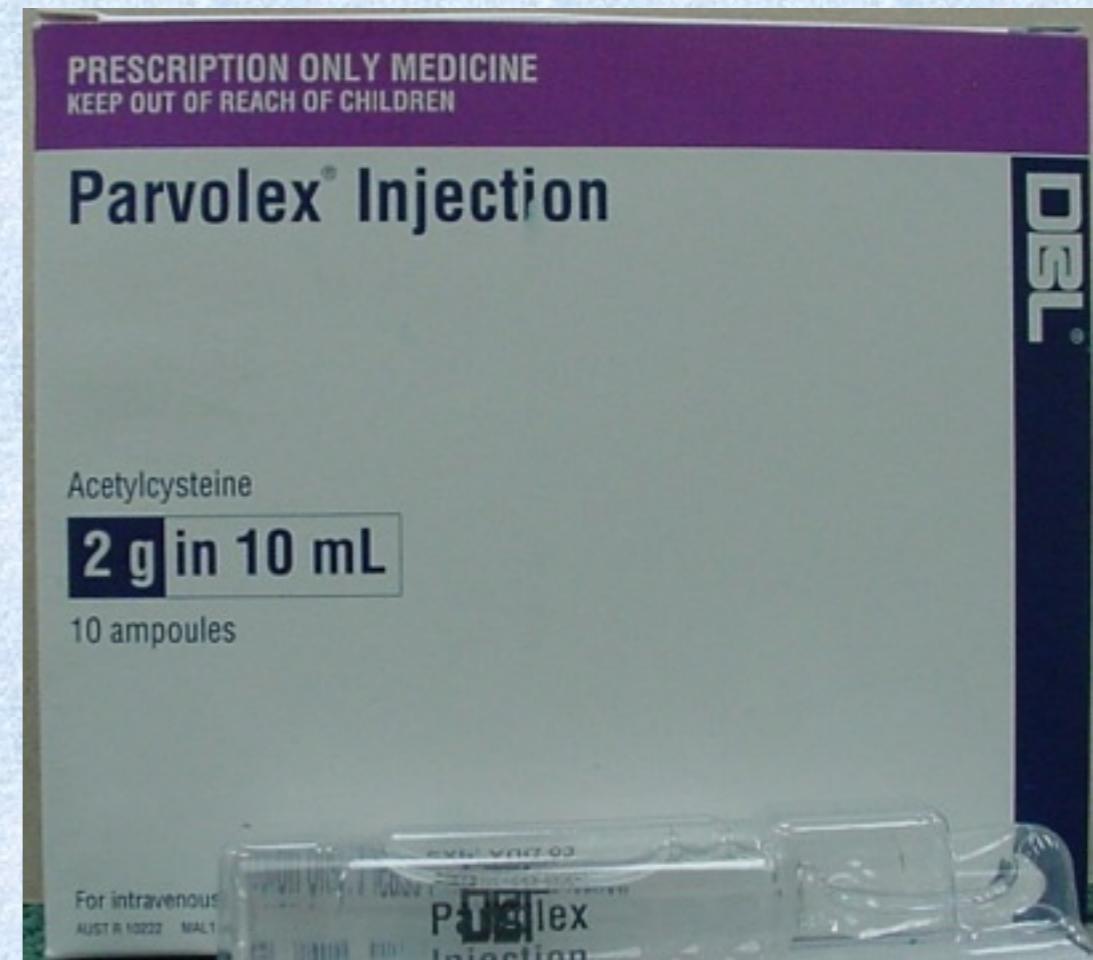
- Methaemoglobinemia,
 - Heinz body anaemia
- Hypothermia
- Depression



Gastrointestinal-Hepatic Toxicities

PARACETAMOL TREATMENT

- Symptomatic and supportive care
- Methaemoglobinemia
 - Methylene blue or ascorbic acid
- N-acetylcysteine (Parvolex)



Xylitol Toxicity

- Sources - artificial sweetener
 - > 0.1 g/kg considered toxic
- Mechanism of action - stimulates insulin release
 - Hypoglycaemia in most dogs
- Liver Failure - mechanism unknown
- Some, not all dogs develop acute liver failure/necrosis
- Signs of GIT upset-e.g. Vomiting



Hepatic Toxicities

SUMMARY

- Paracetamol
 - Face and paw oedema



Hepatic Toxicities

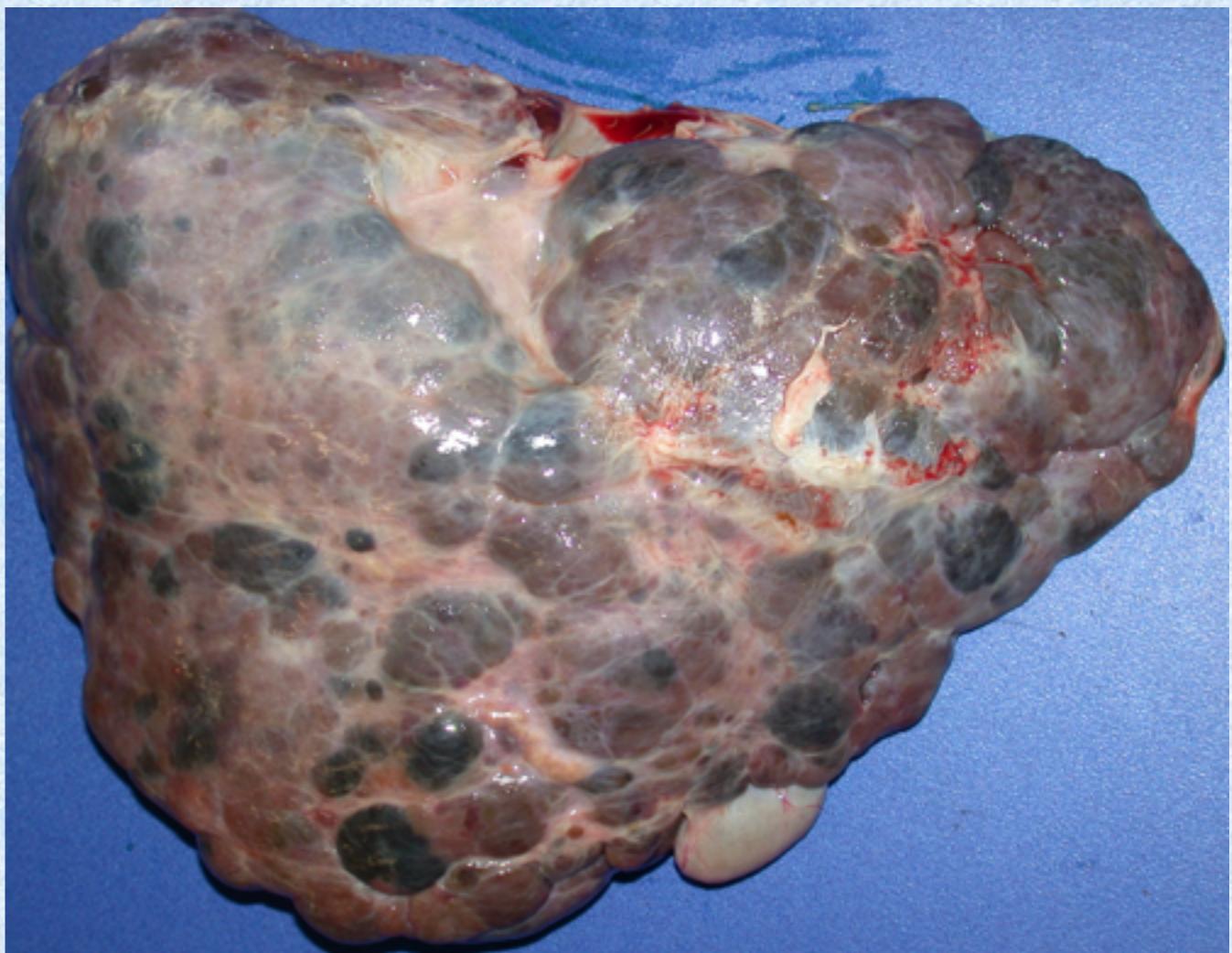
SUMMARY

- Facial Eczema
- Photosensitisation
- Boxing glove liver



Hepatic Toxicities

- Ragwort - pyrrolizidine alkaloids



Gastrointestinal-Hepatic Toxicities

BLUE-GREEN ALGAE

microcystins and nodularin

- Weakness
- Vomiting
- Diarrhoea
- Depression
- Hepatic necrosis



Gastrointestinal-Hepatic Toxicities

BLUE-GREEN ALGAE TREATMENT

- Symptomatic and Supportive care