Herbicides : chemicals are used for kill herbs (weeds) that interfere with agricultural production. Most animal health problem result from exposure to excessive quantity of herbicides due to careless used.

Types of herbicide:-

1- Inorganic herbicide:- include arsenicals and chlorates.

2-Organic synthetic herbicides:-include

A- Phenoxys herbicides(chlorophenoxy herbicides).

B- dipyridyl herbicides (e.g. Paraquat, Diquat).

C- Amide herbicides (thiamide , allidochlor, diphenamide, propanil).

D- Triazine herbicides (e.g. atrazine, propazine , atriazole).

E- Dinitro herbicide (e.g. 2,4 dinitrophenol).

Inorganic herbicide:- include arsenicals and chlorates:-

-Arsenic inorganic herbicides :-

Used as herbicide ,fungicides and as wood preservative.

Mechanism of action:-

-Inactivated Co-enzyme like lipoic acid associated by pyruvate dehydrogenase and uncouples oxidative phosphoralation .it has peripheral vasodilatory effect lead to capillary fluid lost , odema and shock .

Clinical signs :-

In Acute intoxication

-Sever abdominal pain .

-Nausea ,vomiting ,sever watery diarrhea ,Weakness ,ataxia ,tachy cardia ,rapid and weak pulse .prostration and death .

In subacute intoxication in dog seen renal , liver, and GIT damage.

Diagnosis :-

Depend on case history of exposure and clinical signs.

Treatment :-

1-After ingestion ,Gastric lavage and mineral oil .

2-N-Acetyl cysteine.

3-In large animal use Na –thiosulphate or thioctic acid .

4-Also can give BAL .

5-Supportive therapy and care .

Chlorates inorganic herbicides :-

Chlorates salt:-

Mechanism of action:-Chlorates are powerful methmoglobin producer and cause hemolysis ,it has irritant effect on mucosal surfaces.

Clinical signs :-

Hypersalivation ,Vomiting ,Diarrhea ,Hematuria ,Hemoglobinurea (Hb in urine) ,Ataxia ,Cynosis and dyspnea.

Treatment :-

1-Perform Gastric Lavage .

2-Methylen blue .

3-used Vit C in cat and dog .

Organic synthetic herbicides:-include

A-Phenoxys herbicides:- (chlorophenoxy herbicides):

Toxicity :-neurological toxicity due to ability pass through BBB and cause damage to the CNS (depression , tremors , ataxia , weakness) .

In GIT (rumen stasis, anorexia , diarrhea , ulceration of oral mucosa).

Cardiovascular disturbance.

Rapidly distributed to the brain , kidney, and liver .

Treatment:-

1-Specific antidotes are not available.

2-Symptomatically treatment.

3- general and supportive treatment with diuretics.

B-Dipyridyl herbicides (e.g. Paraquat, Diquat).

Toxicity mainly due to its accumulation mainly in lung that of other tissues, . The lung is most affected ,causing respiratory damage.

Mechanism of toxicity : due to formation of oxidative radicals leading to tissue damage by lipid peroxidation.

Treatment :

1-general treatment , specific antidote are not available.

2-Give Acetylcystine ,and Vitamin C and E.

C-Amide herbicide : (e.g. thiamide , allidochlor , diphenamide , propanil).

Mechanism of toxicity :

Toxicity occur due to formation of methemoglobin in blood that not capable to transport oxygen to tissue leading to hypoxia with cyanosis and hemorrhage in tissue

Treatment :

general and supportive with injection of methylene blue as antidote with oxygen therapy.

D-Dinitro herbicide : e.g.(2,4 dinitrophenol).

Mode of toxicity :

by inhibit ATP synthesis due to uncouple oxidative phosphorelation , also they cause methemoglobinemia

Cause disturbance in GIT , CVS , cataract , skin and hair colored
Highly toxic herbicide yellow –orange while urine colored yellow green.

Treatment :

generally and supportive treatment with rehydration fluid and giving Na methyl thiouracil.

E-Triazine : (e.g. atrazine ; propazine , atriazole).

Highly to moderately toxic.

They cause excitation to smooth muscle of GIT and respiratory cause odema and hemorrhage into different tissues.

Treatment : general and supportive treatment.

RODENTICIDE POISONING

Rodenticides are agents which destroy rodent pests such as black rats - rattus) and mice (Mus musculus).

1-Warfarine :-is an anticoagulant by acting as an antimetabolite to vitamin K, thereby inhibition the formation of prothrombin.

2- Thiourase extremely toxic to rats .

3-Sodium fluroacetate and fluoroacetamide.

4-alkaloid strychnine.

5-Inorganic rodenticides : include(Zinc phosphide ,Thallium sulphate ,Arsenic trioxide .

FUNGICIDE POISONING:Examples of fungicides are:-

Fungicides are extensively used in industries, agriculture and the home.

Fungicides vary enormously in their potential for causing adverse effects in humans.

Many fungicides have low inherent toxicity in mammals and are inefficiently absorbed.

1. Thiocarbamates .

2. Thiophthalimides :- captan and captafol.

3. Copper compounds :- organic and inorganic.