the drug is slowly administered.

- If the cattle or buffaloes cough, release the head.
- Do not use the milk within 24 hours of drenching.

**Tips for deworming**

- Randomly assess the egg count in a flock
- Arrive at the dosage based on body weight and manufacturers recommendations
- Annual rotation of drugs between classes to avoid drug resistance.

E.g

I Year: Benzimidazole Fenbendazole
II Year: Imidathiazole Tetramizole
III Year: Avermectins Ivermectin

- Deworming is not harmful to a pregnant and lactating adult and her young ones (except albendazole)

**Preventing worm infections**

- Dry the fodder for 21 days to control flatworms.
- Adopt physical (drainage and Snail traps), chemical and biological method (rearing fish and duck in the pond).
- Prevent cattle and buffaloes from grazing in shady places.
- Destroy grass mites (intermediate host for tapeworms) by ploughing the grazing areas.
- Calf must be dewormed within 10 to 15 days of birth to control ascarid infection
- Don't allow the animal to grazing in dawn and dusk

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**DEWORMING CATTLE AND BUFFALOES**

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DEWORMING OF CATTLE AND BUFFALOES

Among livestock, cattle and buffaloes constitute an important source of income and livelihood to a vast majority of socio-economically backward population in our country. Parasitic infections of economic importance such as flukes, tapeworms and round worms impair the productivity of cattle and buffaloes.

**Mode of infection**
- Cattle and buffaloes get infected by liver or rumen flukes by ingestion of infective stages (*metacercaiae*) along with grass or drinking water during grazing.
- Get blood fluke infection by penetration of infective stages through skin.
- Acquire tapeworm infection by ingestion of grass mites containing infective stages during grazing.
- Get round worm infection by ingestion of infective larvae or embryonated eggs during grazing.
- Calves acquire infection through placenta or along with colostrum.

**Pathogenic effects of worms**

**Flukes**
LIVER flukes cause, anorexia, loss of condition, pale mucous membrane, disinclination to move, sudden death with bloody discharges from natural orifices, enlarged liver, sub mandibular oedema (Bottle jaw) and ascites with pain to touch. Infection with immature rumen flukes causes necrosis and haemorrhagic duodenitis, profuse fluid foetid diarrhea, weakness, bottle jaw and death in 15 - 20 days. Nasal blood flukes cause respiratory distress, sneezing, mucopurulent discharge with blood, whistling sound due to cauliflower like growth in the nasal cavity affecting the work capacity of bullocks.

**Tapeworms**
They cause reduction in growth and production performances in adult animals, intestinal obstruction sometimes death in calves.

**Roundworms**
Cause gastrointestinal disturbances such as anorexia, persistent diarrhea (black colour or dark green color) sometimes mixed with mucus and blood, constipation, anaemia, bottle jaw, rough coat, leg weakness, delayed maturity, reduction in milk, emaciation, cachexia with atrophy of muscle and sudden death in some cases.

![Roundworm Image]

### Benefits of Deworming
- Growth rate, body weight and immunity will be increased.
- Calves will be healthy.
- Calf mortality will be reduced.

**Deworming**
- Administer drugs as per the recommendations of the manufacturer and as directed by Veterinarians.
- Check the expiry date of drugs.

**Drugs and schedule**

**Liver fluke and amphistomes**

**Drugs**
Triclabendazole - 10 mg/kg b.wt. (oral)

**Oxytetracycline**
- 15-20 mg/kg b.wt. (oral)

**Praziquantel**
- 60 mg/kg b.wt. (oral)

Two doses in a year
First dose: May - June
Second dose: Jan-Feb

**Schistosomes**
Lithium antimony thiomaleate - 20 ml, 15 ml and 15 ml at 2 days internal (I/M)

**Tapeworms**
Niclosamide - 75-150 mg/kg body weight (oral)
Praziquantel - 15mg/kg body weight (oral)

First dose: 2'1/2 months of age

**Round worms (based on rain fall and temperature)**
Albendazole - 7.5 mg/kg b.wt. (oral)
Fenbendazole - 7.5 mg/kg b.wt. (oral)
Levamizole - 7.5 mg/kg b.wt. (oral)
Tetramizole - 15 mg/kg b.wt. (oral)
Ivermectin - 200 µg/kg b.wt. (oral)

Three to four doses a year mostly around monsoon time or rainfall
Jun-Sep-December or Jun-Sep-Dec-February

**Ascarid infection**
Pyrantel pamoate - 5 mg/kg. b.wt.
Piperazine compound 200 mg/kg. b.wt.

First dose: 10-15 days of birth

**Method of deworming**
- The easiest way is by drenching. The drenching bottle or a normal syringe is carefully placed inside mouth with the head of the animal slightly raised and