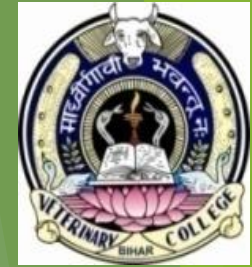




Demonstration of the Types of Final and Intermediate Hosts (Practical)



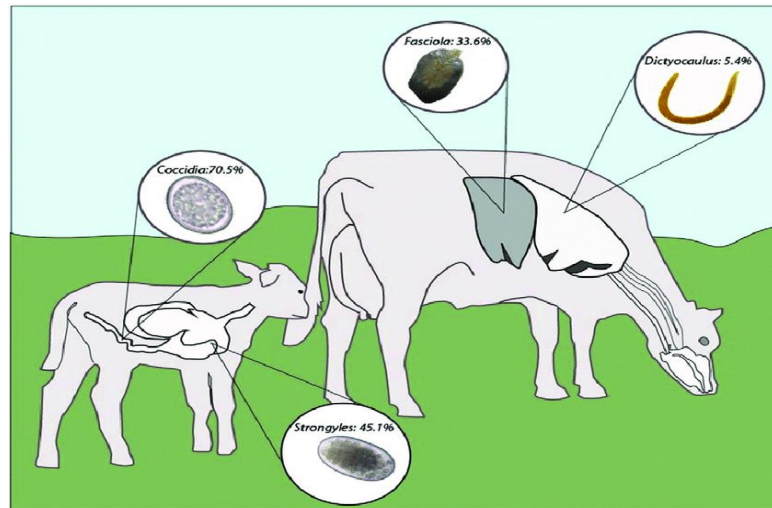
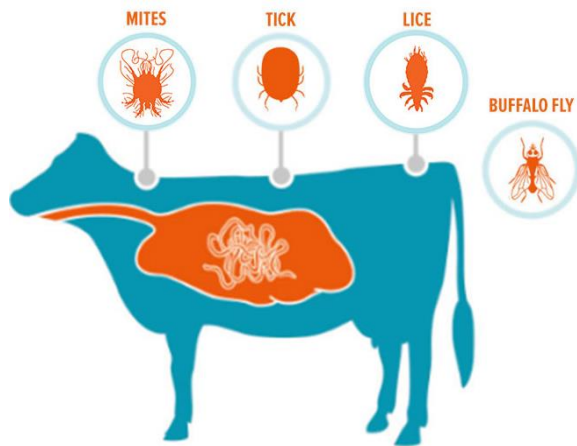
Dr. AJIT KUMAR
HoD

Department of Veterinary Parasitology
Bihar Veterinary College
Bihar Animal Sciences University
Patna-800014

Types of Final Hosts

Final Host or Definitive Host: Host which harbours the adult stage of the parasite and parasite reach the sexual maturity in it.

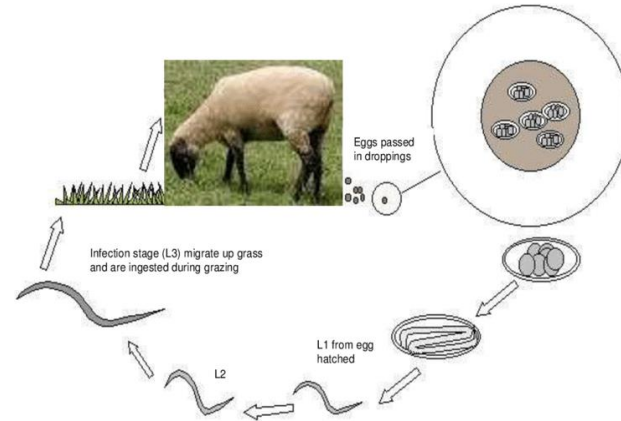
Domestic animals: Cattle, buffaloes, Sheep, Goats etc.



Types of Final Hosts

Final Host or Definitive Host:

Sheep, Goats etc.



GOATS CAN HOST MANY DIFFERENT KINDS OF INTERNAL PARASITES.

MULTI-CELLULAR HELMINTHS

Nemadodes
Roundworms
Strongyles
Cestodes
Flatworms
Tapeworms
Trematodes
Flukes

SINGLE CELL PROTOZOA

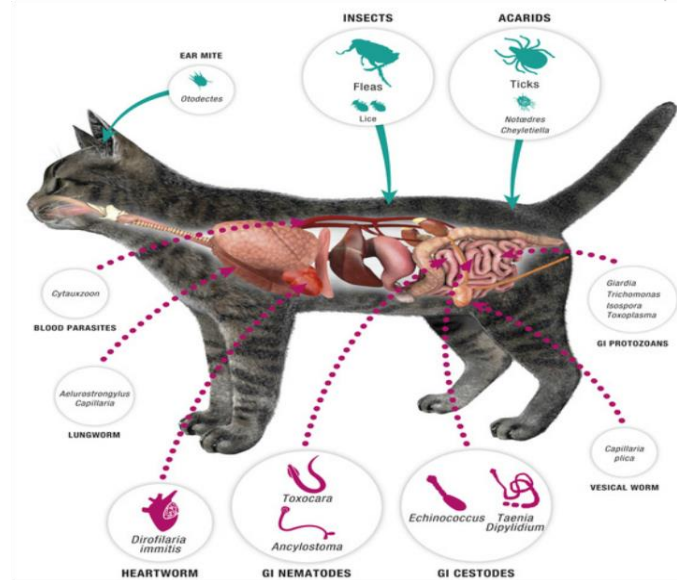
1. Coccidia
2. Giardia
3. Cryptosporidia



Types of Final Hosts

Final Host or Definitive Host:

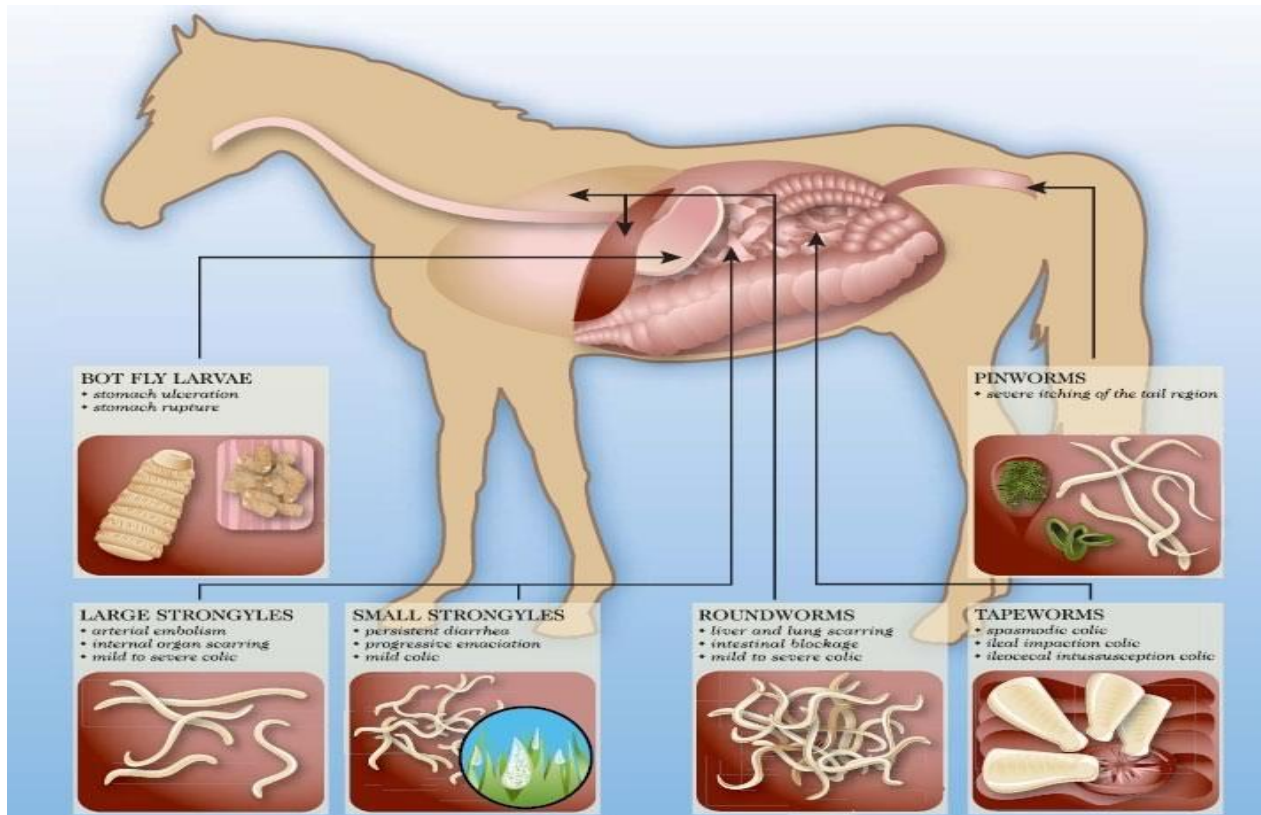
Pet animals: Dog, Cat etc.



Types of Final Hosts

Final Host or Definitive Host:

Equines: Horse , donkey etc.







Types of Final Hosts

Final Host or Definitive Host:

Fowls: Poultry , pigeon, turkeys etc.

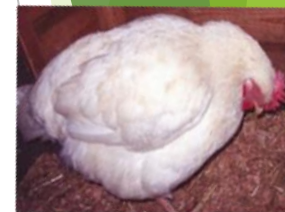
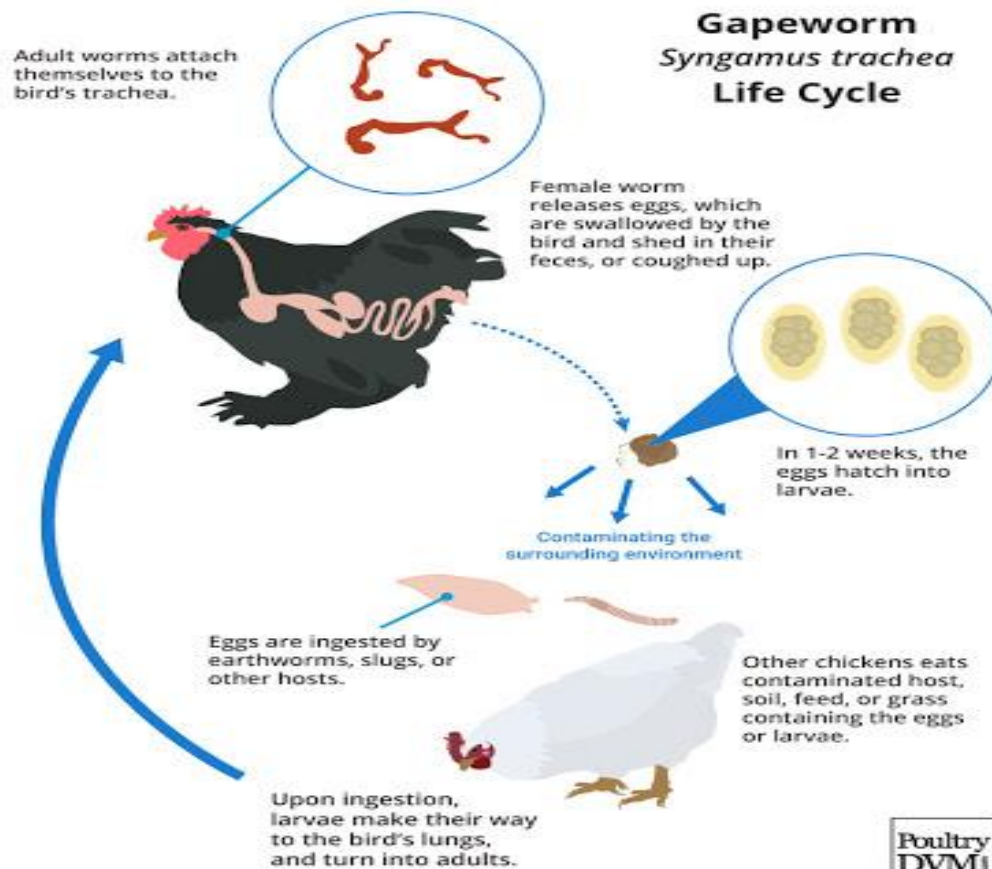


Common Name	Scientific Name	Location
Roundworm (Ascarid) 	<i>Ascaridia galli</i>	Small Intestine
Tapeworm 	Many	Small Intestine
Capillaria 	<i>Capillaria obsignata</i> (most common)	Small Intestine (Occasionally ceca)
Cecal Worm 	<i>Heterakis gallinarum</i>	Cecal pouches



Types of Final Hosts (Definitive host)

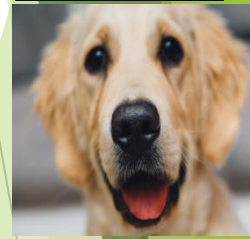
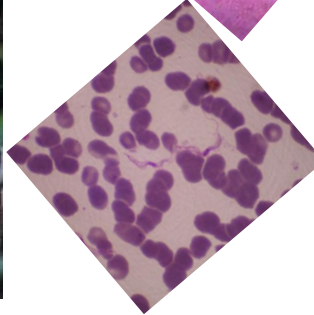
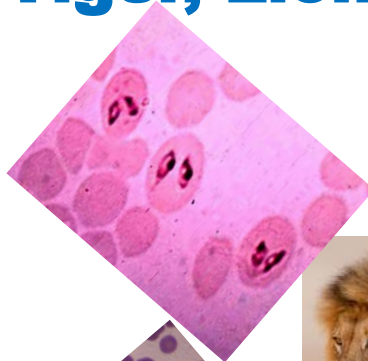
Parasites	Common name	Definitive hosts
<i>Syngamus trachea</i>	Gapeworm)	Birds



Types of Final Hosts

Final Host or Definitive Host:

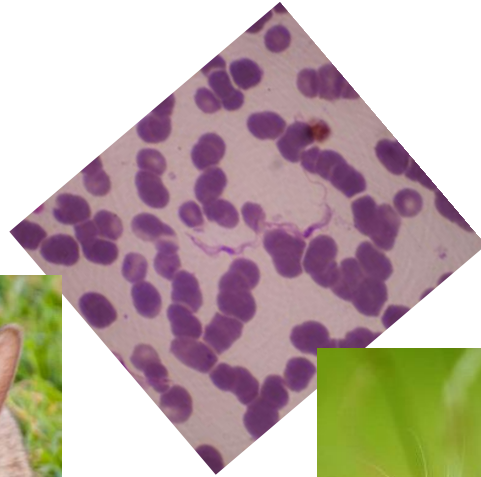
Wild animals: Tiger, Lion, Deer etc.



Types of Final Hosts

Final Host or Definitive Host:

Laboratory animals: Rabbit, rat, mice, etc.



Types of Final Hosts

Final Host or Definitive Host:

Parasites	Common name	Definitive hosts
<i>Toxocara canis</i>	Arrow headed worm	Dog
<i>Syngamus tarchea</i>	Gape worm)	Birds
<i>Oxyuris equi</i>	Pin worm of horse	Horse& Donkey
<i>Paragonimus westermani</i>	Lung fluke	Dog, cat, tiger etc.
<i>Dipylidium caninum</i>	Commonest tapeworm of dog	Dog
<i>Trypanosoma evansi</i>	-	Horse, dog, cattle, Tiger etc.
<i>Eimeria tenella</i>	-	Poultry



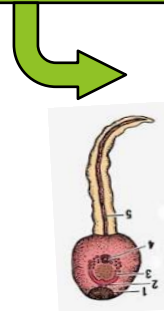
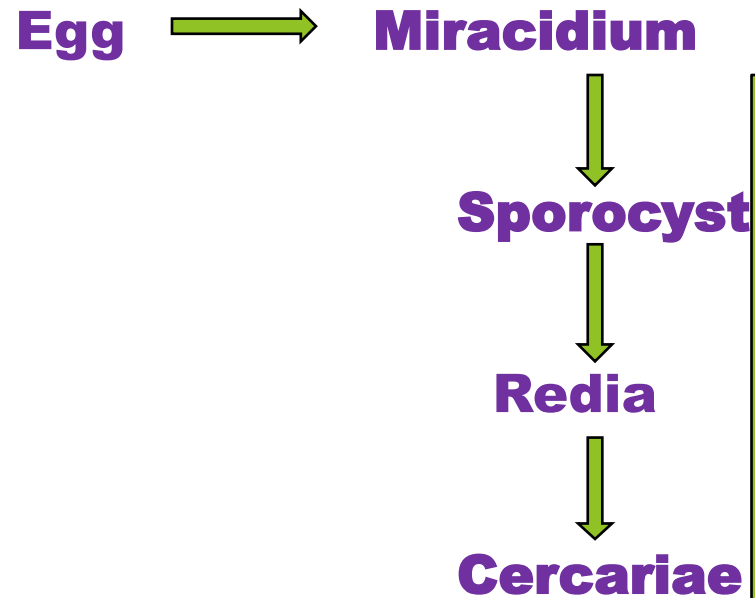
Types of Intermediate Hosts

Intermediate Host: Host, which harbours the larval stages or the developing stages of the parasite.

Mollusca: Snails etc.





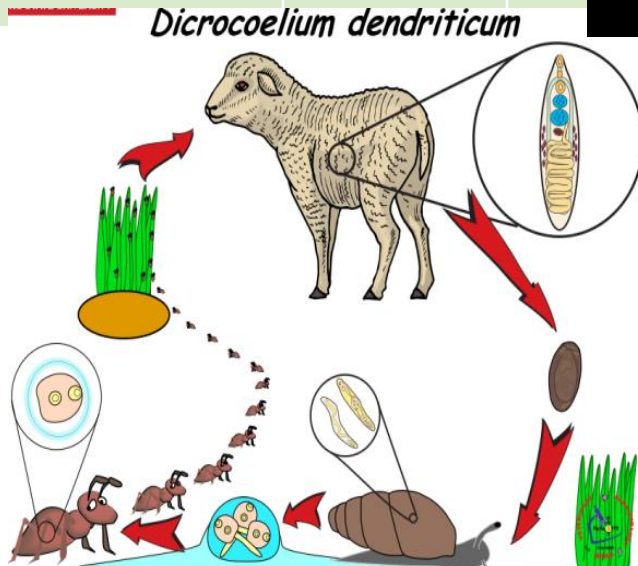
LIFE-CYCLE OF FLUKES



cercaria emerge from the aquatic snail and encyst on aquatic vegetation or enter inside 2nd intermediate host & form Metacercaria.

Types of Hosts (Intermediate hosts)

Parasite	Final Host	First Intermediate host	Second Intermediate host
<i>Dicrocoelium dendriticum</i> (Lancet fluke)	Cattle, sheep, goat, pig etc.	Land snail (<i>Cionella</i> etc.) 	Ant (<i>Formica fusca</i>) 



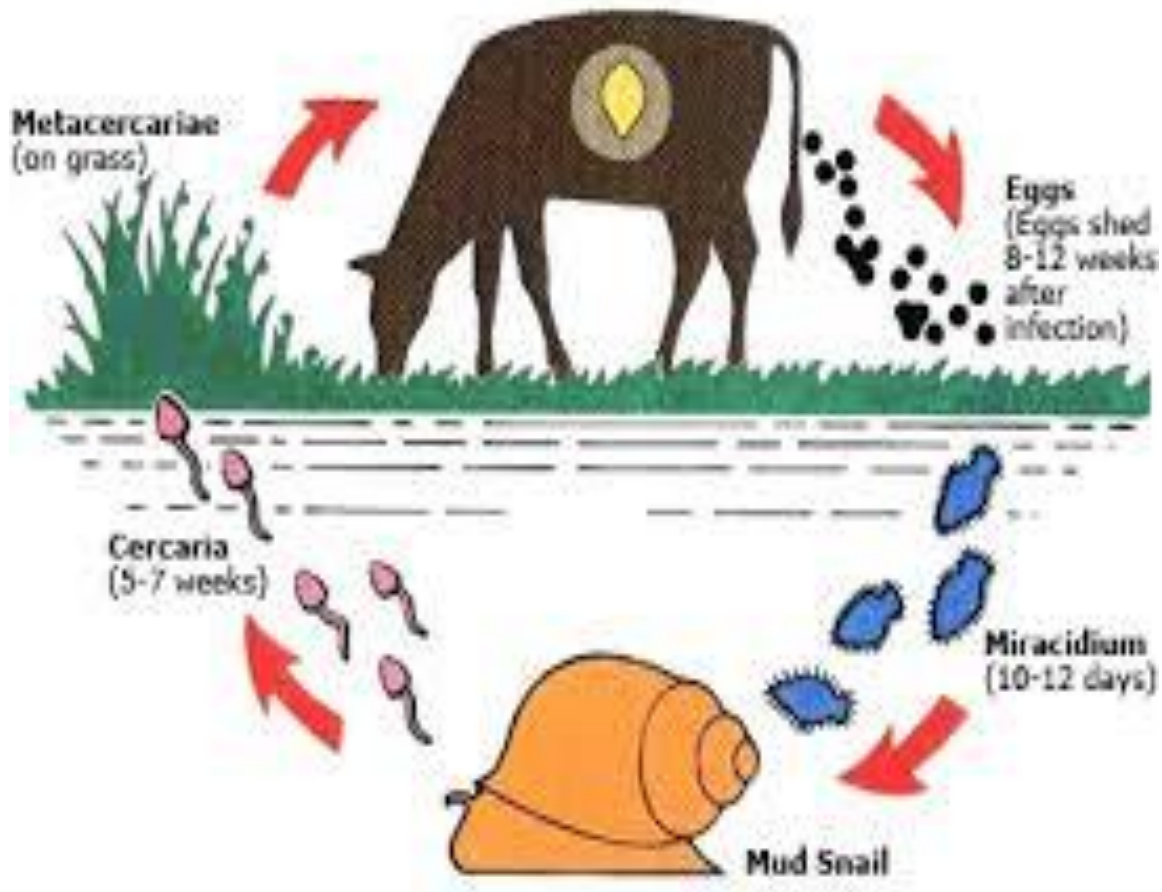
Types of Hosts

Intermediate Host: Host, which harbours the larval stages or the developing stages of the parasite.

Parasites	Definitive hosts	Intermediate hosts (I.H.)
<i>Fasciola hepatica</i>	Cattle, sheep, goat etc.	Snail (<i>Lymanea luteola</i>)
<i>Moniezia expansa</i>	Cattle	Oribatid mite
<i>Taenia solium</i>	Man	Pig, Man
<i>Davainea proglottina</i> (Smallest tapeworm of poultry)	Poultry	Ant
<i>Diocotophyma renale</i>	Dog	Aquatic annelid (Oligochaete)
<i>Dicrocoelium dendriticum</i>	Cattle, pig etc.	First I.H.- Snail Second I.H.- Ant
<i>Diphyllobothrium latum</i> (Fish tapeworm or Broad tapeworm)	Man, dog, cat etc.	First I.H.- Cyclops Second I.H.- Fishes



Mode of Transmission of Parasites



Types of Intermediate Hosts

Intermediate Host:

Oribatid mites



Types of Intermediate Hosts

Species of *Moniezia* :-

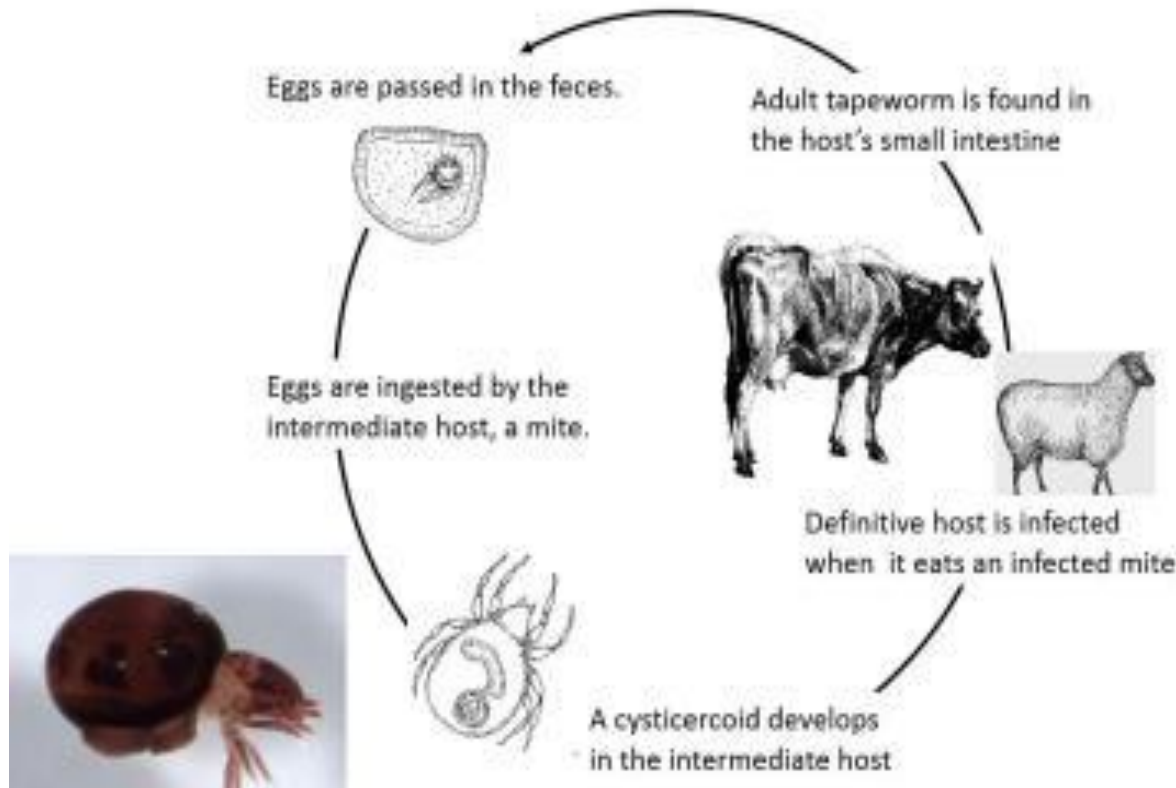
Species	Definitive host	Location	Intermediate host	Type of Metacestode
<i>Moniezia expansa</i> (sheep tapeworm or Double-pored ruminant tapeworm)	Sheep & goat (chiefly) and cattle	Small intestine	Oribatid mites (<i>Galumna</i> , <i>Oribatula</i> etc.)	Cysticercoid
<i>Moniezia benedeni</i>	Cattle		-do-	-do-

Types of Intermediate Hosts

Intermediate Host:

Oribatid mites

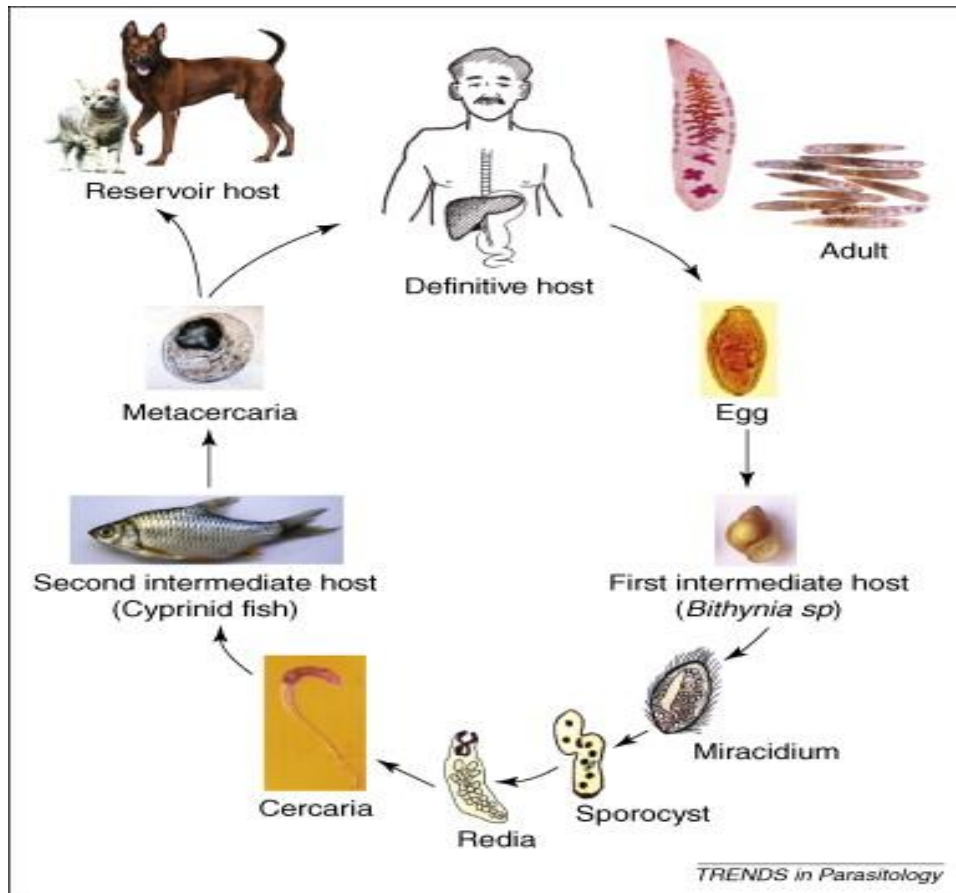
LIFE CYCLE OF *MONIEZIA EXPANSA*



Types of Intermediate Hosts

Intermediate Host:

Fish act as 2nd intermediate host for *Opisthorchis* spp.



Types of Intermediate Hosts

Intermediate Host:

Fleas act as Intermediate host for *Dipylidium caninum*.

Definitive host or Final host : Dog, cat, fox and children

Intermediate host : Dog fleas
(*Ctenocephalides canis*, *Ctenocephalides felis* and *Pulex irritans*) and dog louse
(*Trichodectes canis*)

Life-cycle of *Dipylididium caninum*

NC STATE UNIVERSITY

Dipylididium caninum

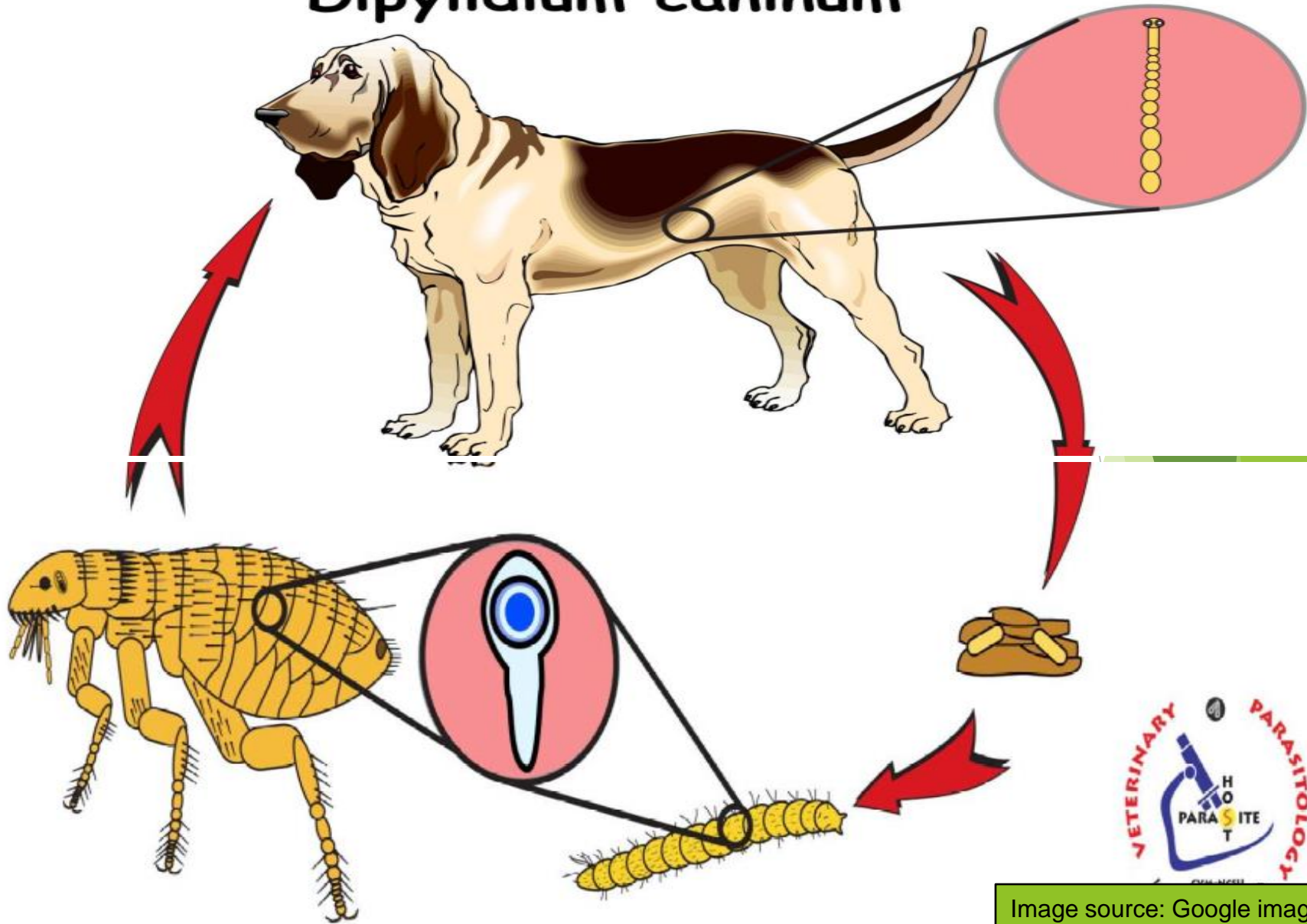
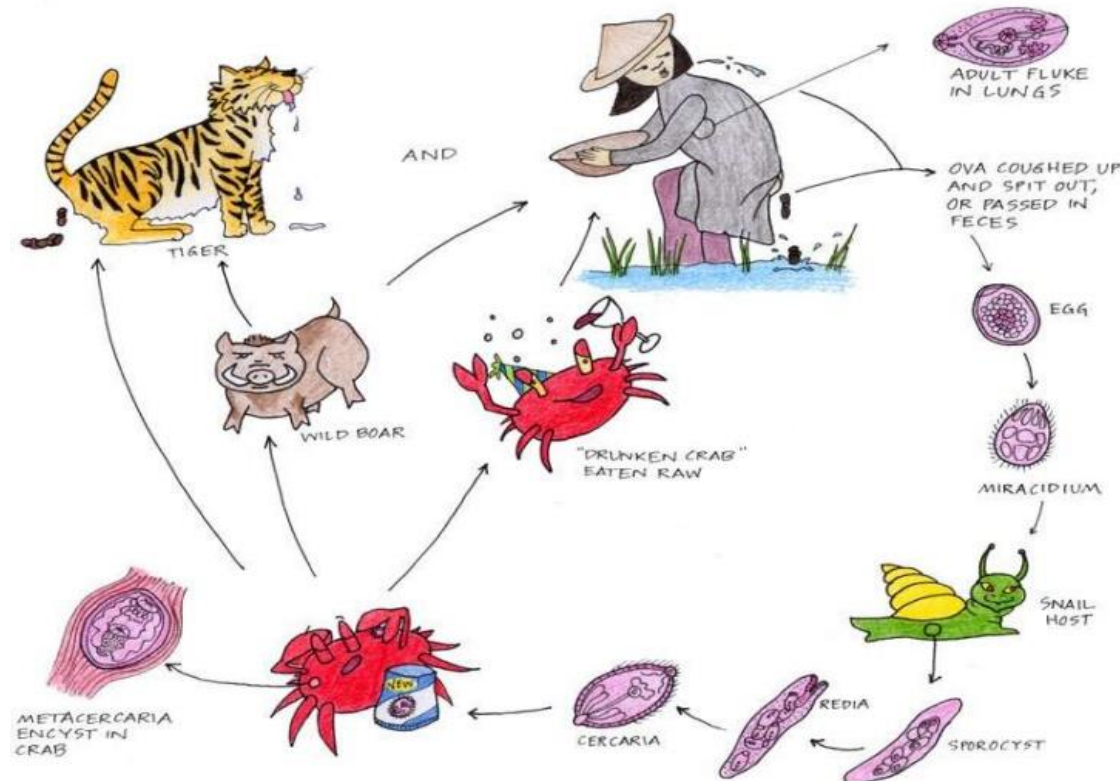


Image source: Google image

Types of Intermediate Hosts

Intermediate Host:

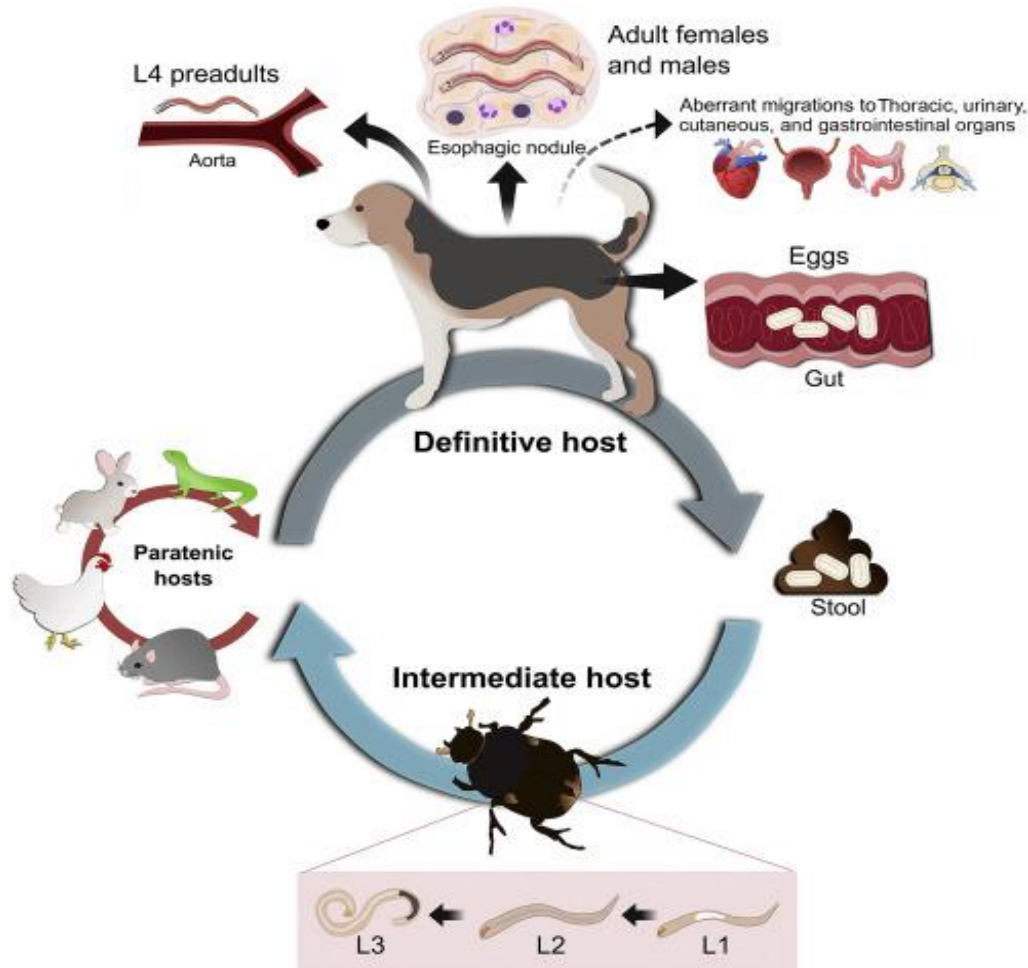
Crab act as **2nd** intermediate host for *Paragonimus westermani* (lung fluke)



Types of Intermediate Hosts

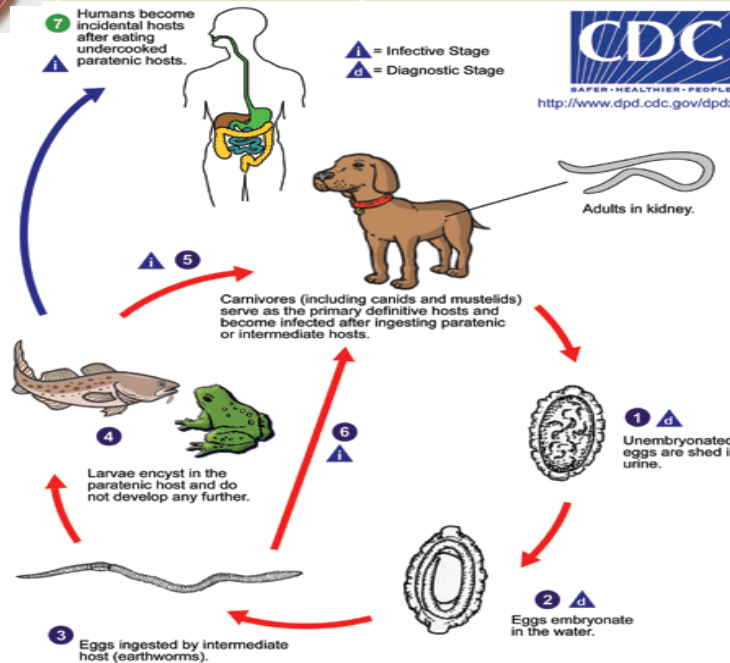
Intermediate Host:

Coprophagous beetle act as **Intermediate host for *Spirocerca lupi***



Types of Hosts (Intermediate hosts)




Parasite	Final Host	Intermediate host
<i>Dioctophyma renale</i> (Kidney worm of dog)	Dog	Aquatic annelid (Oligochaete)

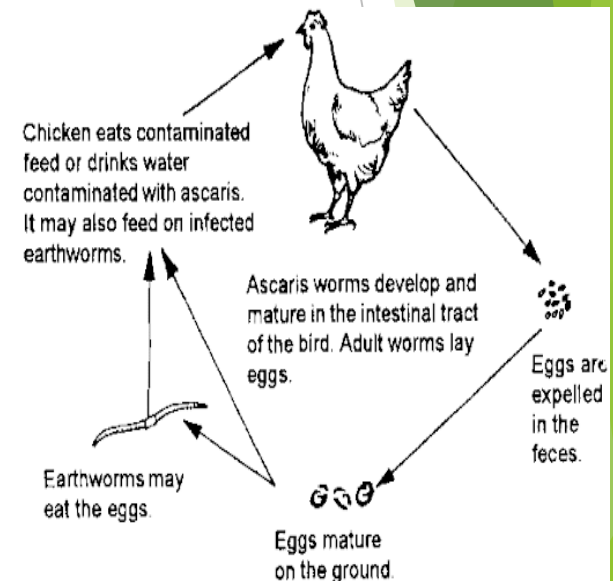


Types of Hosts

Paratenic Host: When the parasitic stage is simply sheltered by a host and no biological development occurs in it.


e.g. Earthworm for *Ascaridia galli*.

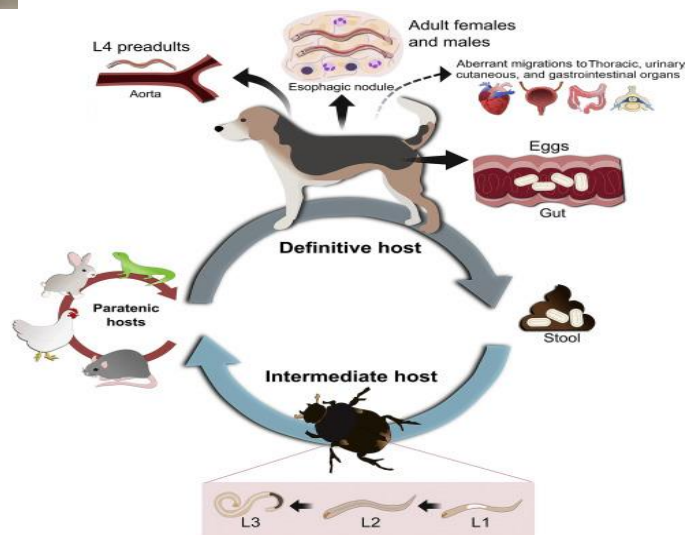
Parasite	Final host	Paratenic host
<i>Ascaridia galli</i>	Poultry	Earthworm
		



Types of Hosts

(Paratenic host)

Parasite	Final host	Intermediate host	Paratenic host
<p><i>Spirocerca lupi</i> (Common Name: Oeophageal tumour worm of dog)</p> 	Dog	Coprophgous beetles	Birds, amphibia, reptiles, lizard , rabbit etc.

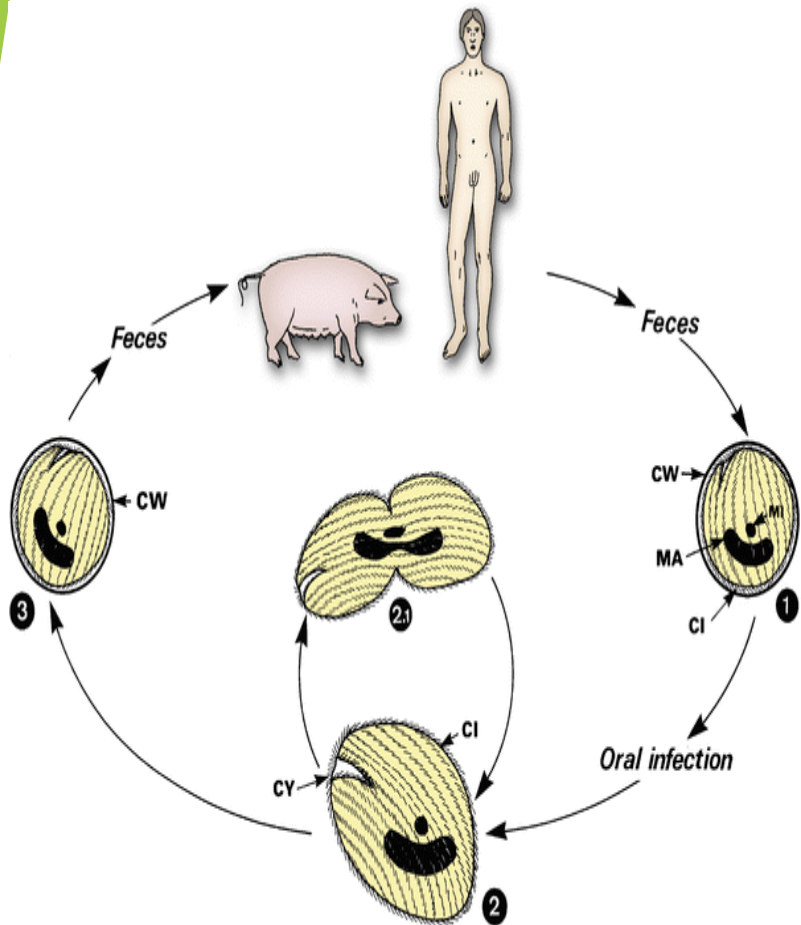


Types of Hosts

Reservoir Host: It is a vertebrate host, which harbours the parasites without manifesting the disease. It serves as an important source of infection for other definitive host in which it may produce disease.

Parasite	Reservoir host
<i>Balantidium coli</i>	Pig
<i>Trichinella spiralis</i>	Pig
<i>Leishmania tropica</i>	Rodents

Types of Hosts (Reservoir Host)



Balantidium coli

Trichinella spiralis

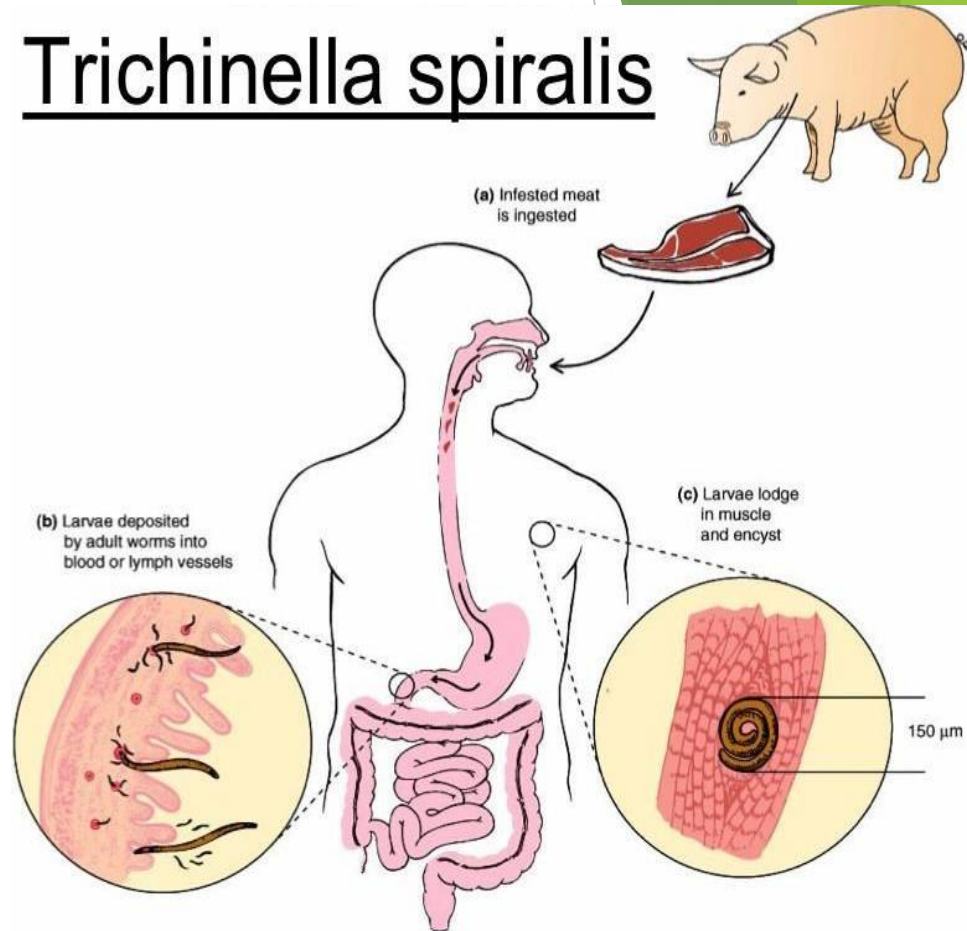




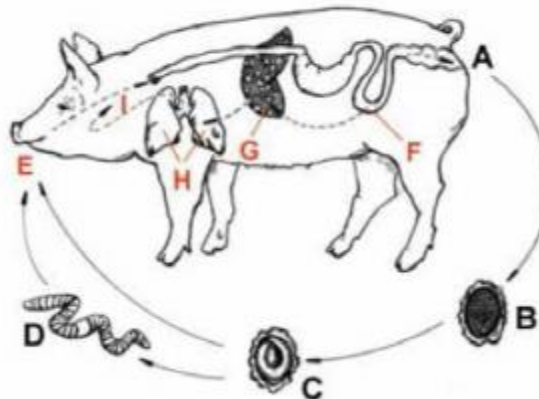
Image source: Google image

Types of Hosts

Natural hosts: Host which is naturally infected with certain species of parasite.

Parasite	Natural host
<i>Ascaris suum</i> 	Pig 

ASCARIS SUUM LIFE CYCLE

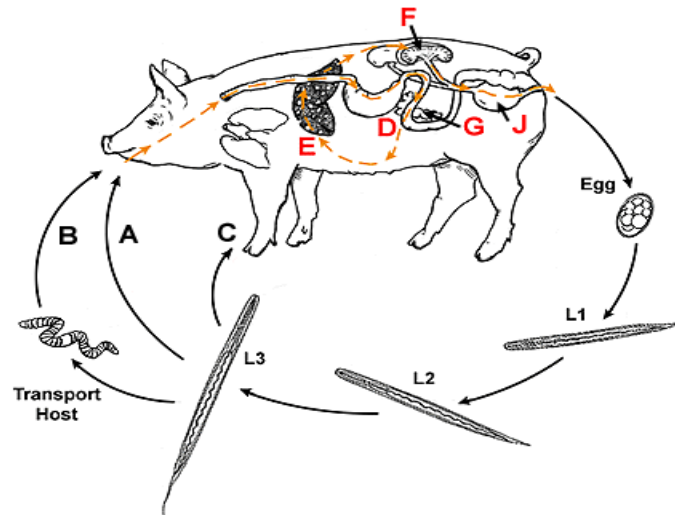


Types of Hosts (Natural host)

Parasite	Natural host
<i>Stephanurus dentatus</i> (Kidney worm of pig)	Pig

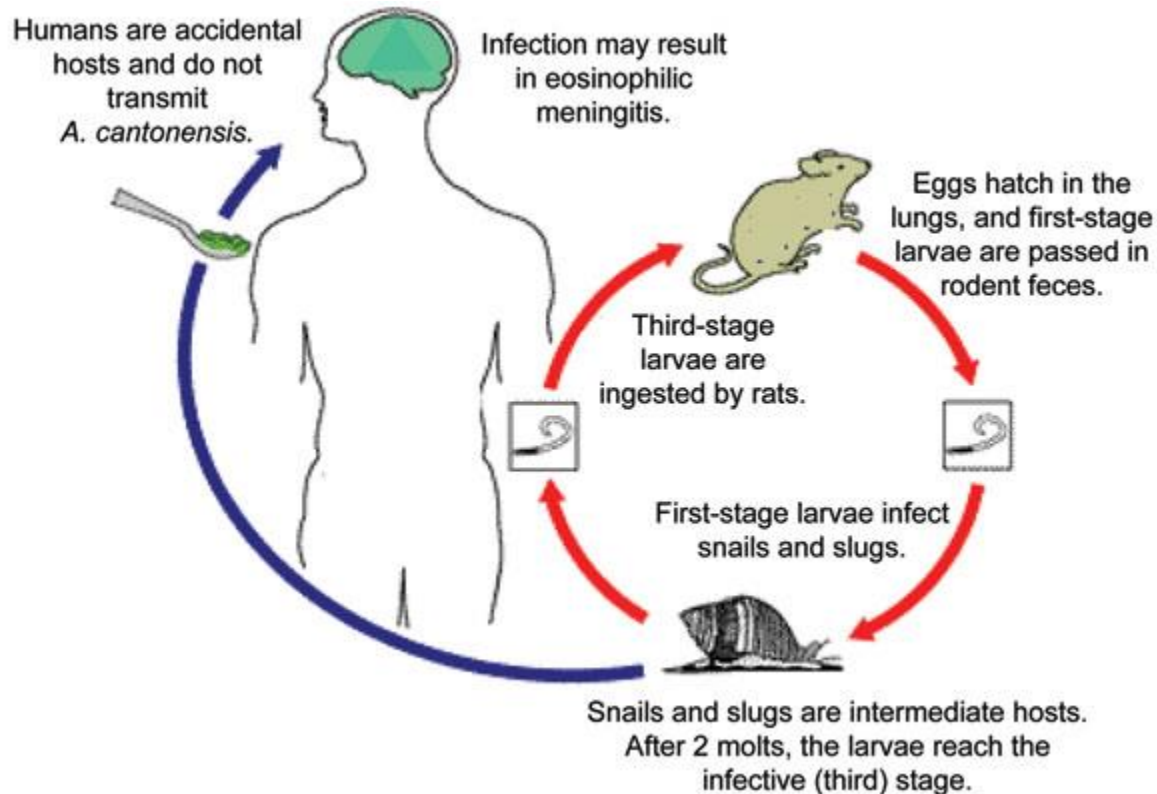


Stephanurus dentatus - Life Cycle



Types of Hosts

Accidental host (Unnatural host): Host in which particular parasite is usually not found but may infect and develop. e.g. *Angiostrongylus cantonensis* (Rat lung worm) in man caused eosinophilic meningitis.



Life-cycle of
Angiostrongylus cantonensis

THANK U