

# Genus : Syngamus

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# Syngamus : Morphology

- They are medium-sized worm commonly known as “Gape worms” or “Red worms” or “Forked worms”
- Males and females are joined together in a state of permanent copulation forming, a ‘Y’ shape.
- Females (up to 20mm long) are much longer than males (up to 6mm long).
- The worms have a tubular digestive system with two openings.
- The mouth capsule is cup-shaped and has up to 10 teeth.
- The worms also have a nervous system but no excretory organs and no circulatory system, i.e. neither a heart nor blood vessels.
- Each male has a bursa with two short spicules for attaching to the female during copulation.



Source- Google

# *Syngamus trachea*

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*Syngamus trachea*



# *Syngamus* in trachea

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# Syngamus : Life cycle

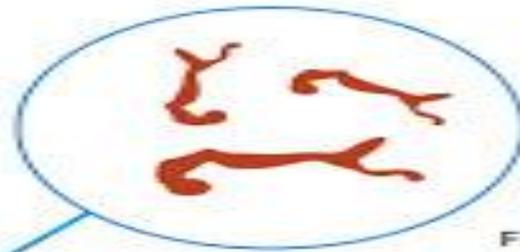
- They have a direct life cycle, with birds as final hosts and intermediate hosts or transport or paratenic hosts as earthworms, snails, slugs, flies, and cockroaches.
- Adult females lay eggs in the trachea of infected birds. These eggs reach the bird's mouth through coughing, exudations, etc, are swallowed and passed with the feces.
- In the environment infective L3 larvae develop inside the eggs within 1-2 weeks.
- The infective larva ingested by I.H, the eggs release the larvae that become encysted in the tissues and can remain infective for years.

# Syngamus : Life cycle

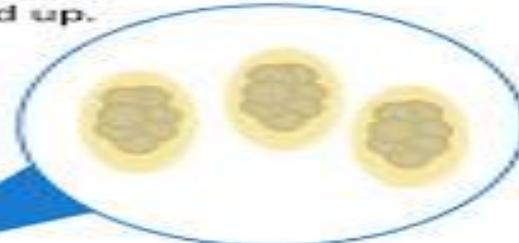
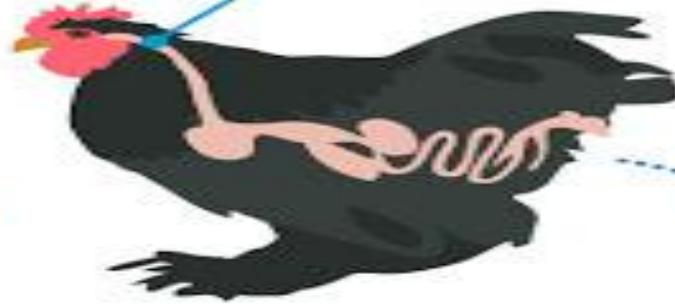
- Birds become infected through food or water contaminated with infective eggs, or after eating contaminated transport hosts (earthworms, snails, insects, etc).
- Inside the bird, larvae penetrate the gut and reach the blood vessels.
- They are carried towards the lungs along the mesenteric veins, the liver and the heart.
- They reach the lungs about 24 hours after infection. There they moult twice.
- Shortly after the last moult they copulate and migrate to the trachea where they attach to the wall to suck blood.

# Gapeworm *Syngamus trachea* Life Cycle

Adult worms attach themselves to the bird's trachea.



Female worm releases eggs, which are swallowed by the bird and shed in their feces, or coughed up.



In 1-2 weeks, the eggs hatch into larvae.

Contaminating the surrounding environment

Eggs are ingested by earthworms, slugs, or other hosts.



Other chickens eat contaminated host, soil, feed, or grass containing the eggs or larvae.



Upon ingestion, larvae make their way to the bird's lungs, and turn into adults.

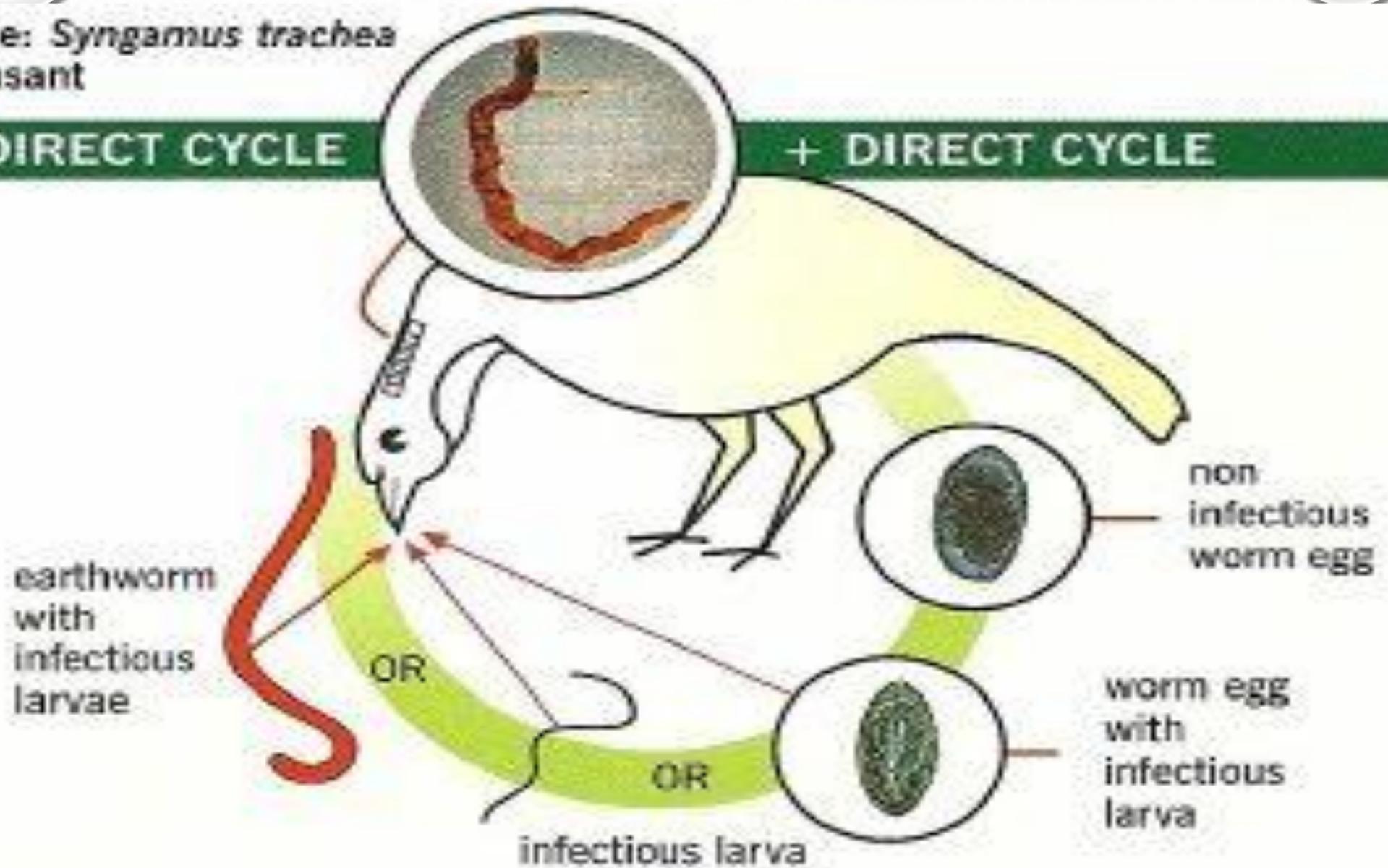


# *Syngamus*: life cycle

example: *Syngamus trachea*  
in pheasant

INDIRECT CYCLE

+ DIRECT CYCLE



*Syngamus*: life cycle

## Syngamus : Clinical signs

- The young birds are more susceptible to the infection than older birds.
- Clinical signs include coughing, sneezing and respiratory disturbances.
- Initially the birds try to expel the worms vigorously shaking their heads later they repeatedly gape and breathe with a hissing sound.
- They refuse to drink, lose appetite and weight and become apathetic.
- Anemia can also occur.
- In severe cases deaths can happen, particularly in young birds.

# Syngamus : Pathogenesis

- The worms can be very harmful, especially for young birds.
- They can be a serious problem in free-range poultry, particularly if the birds have access to humid environments with abundant intermediate hosts.
- A few species are usually well tolerated, especially by adult birds, which usually develop natural resistance if previously exposed to the worms.
- But in heavy infections the worms cause inflammation of the wall of the trachea and an increased mucus production, sometimes mixed with blood leaking from the small injuries caused by the worms.



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# *Syngamus in trachea*

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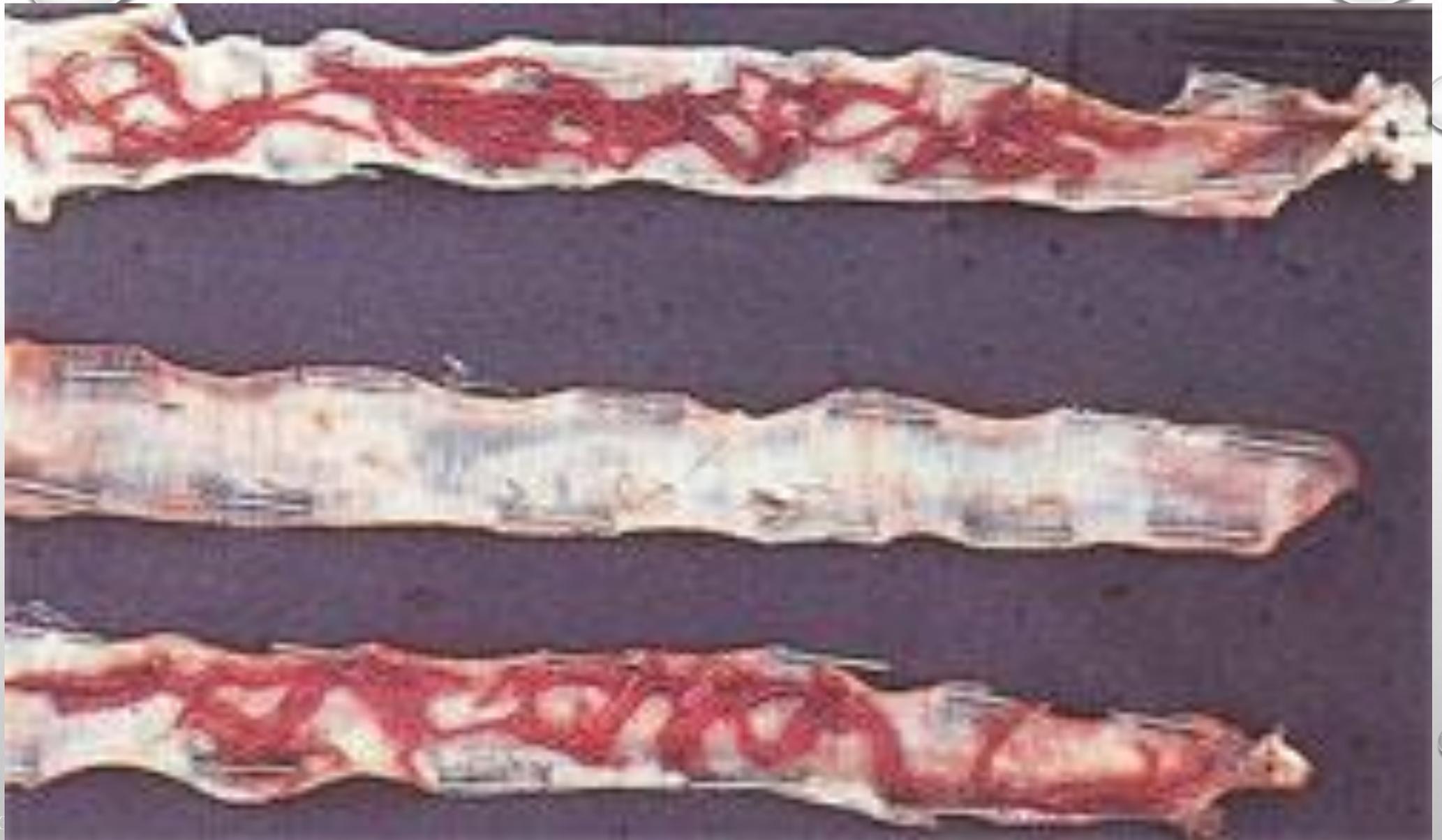


Source- Google

# *Syngamus trachea*

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Source-C

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# *Syngamus* in trachea

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Source-G

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# *Syngamus* lesions

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# Gaping movement

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# Syngamus : Diagnosis

- Examination of faecal sample and tracheal mucus for detection of characteristic.
- Diagnosis can be confirmed in young birds through direct observation of the trachea against a strong light. The adult worms can be seen inside the trachea.
- The worms can also be seen attached to the trachea in P.M examination.



# *Syngamus* lesions

# Syngamus : Diagnosis

- The measures are especially important for young birds, which are likely to be more susceptible to the infections.
- The birds' bedding in poultry houses should be kept dry.
- It is also advisable to restrict the access of free-range poultry to dark and humid environments where intermediate hosts are usually more abundant.
- The younger birds should be reared separately from older birds.
- The use of insecticides or molluscicides to kill the intermediate hosts is usually not advisable.
- Use of pesticides is very effective way to control the worms.