

# FAMILY: OESTRIDAE

1. Larvae of this flies cause the condition known as **host specific myiasis**.
2. The adults are quite large in size with thick hair covering the body and have vestigial mouth part and they do not feed.
3. The only activity of this flies are restricted in mating, laying eggs or larvae on their specific host and then die.
4. Larvae have a comparatively longer life span and the nutrition required for the adults are also acquired in the larval stage.
5. The flies are very important as animal pest in different parts of this country.

**Genus:** ***HYPODERMA***

**Common name:** Warble fly (ox warbles)

**Species:**

- H. lineatum* - Heel fly or common cattle grub
- H. bovis* - northern cattle grub
- H. crossi* - In India in sheep and goat
- H. diana* - Deer

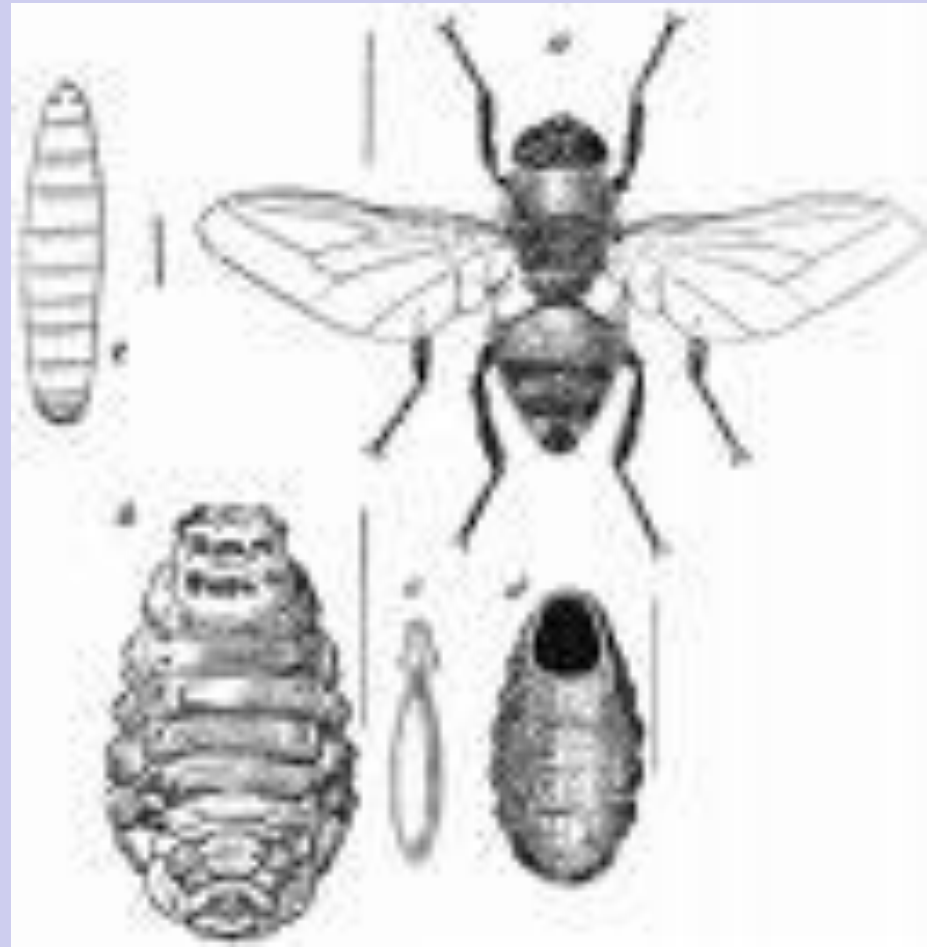
The larvae of this fly attack their specific host and cause great loss particularly in hide and skin of the animals.

- In India *H. lineatum* attack cattle and rarely man and horse and other species are not common.



- They are found all over the country but are mostly common in areas with high temperature and low humidity.

- *H lineatum* is a very common species and cause a great problem to farmers.

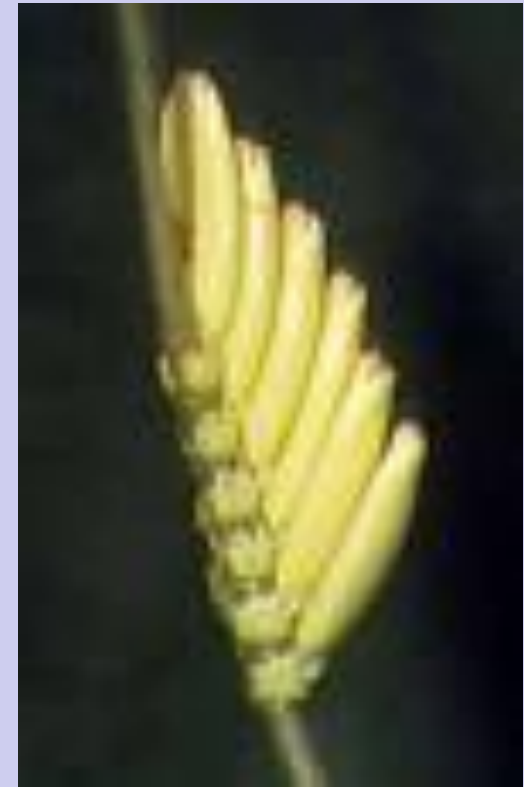
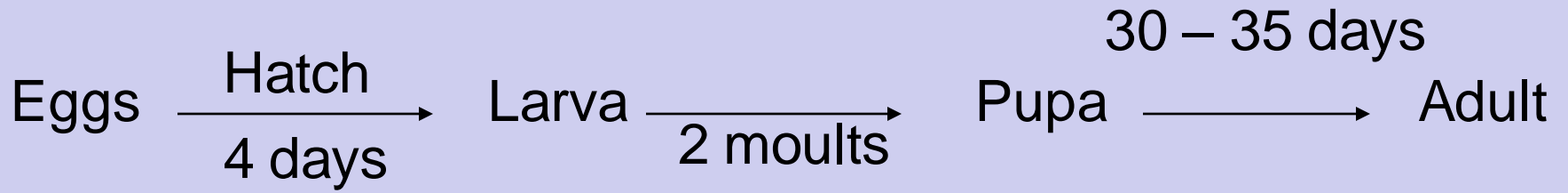


## **Morphology:**

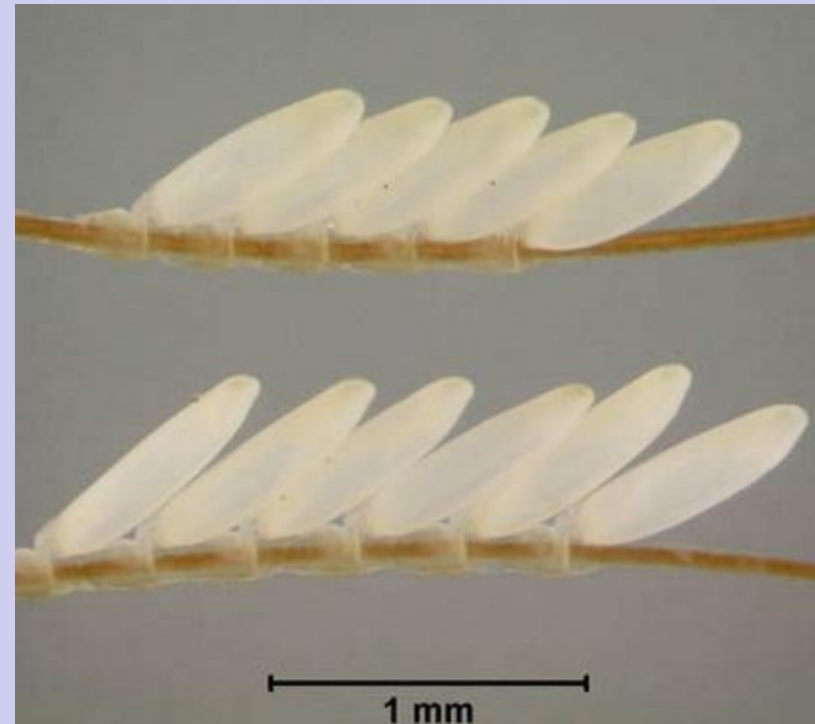
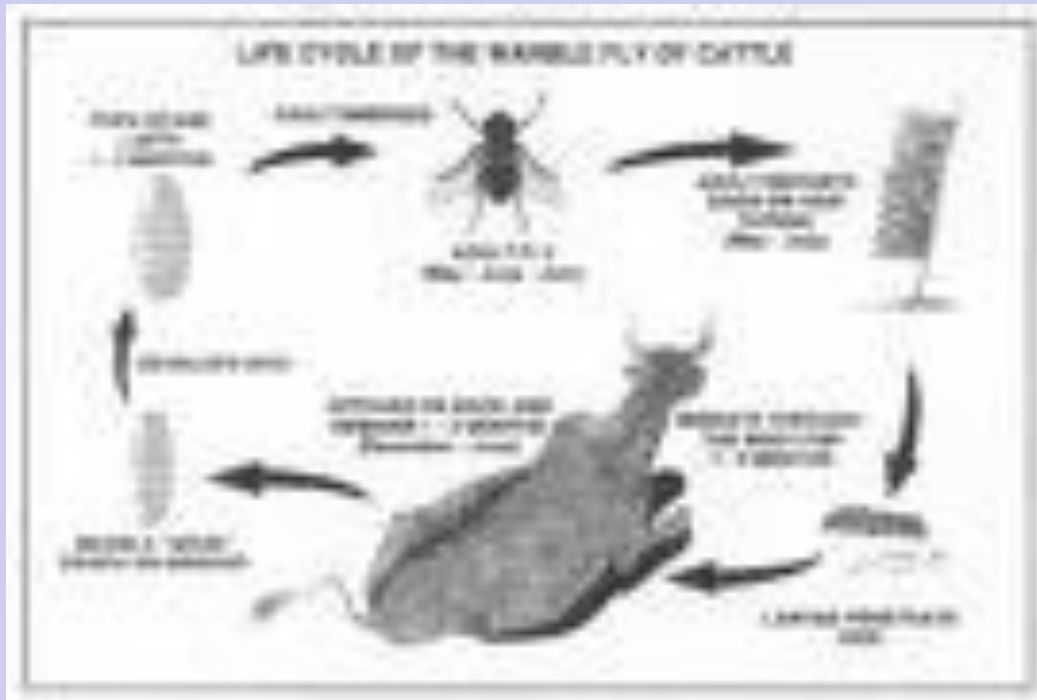
1. Medium size flies about 13 mm in length.
2. They are grayish in colour with hairs on the body.
3. The colour of which yellowish white on the head and anterior part of the thorax and bright yellow on the posterior part of the thorax and abdomen.
4. Mouth part vestigial, antennae bear arista.



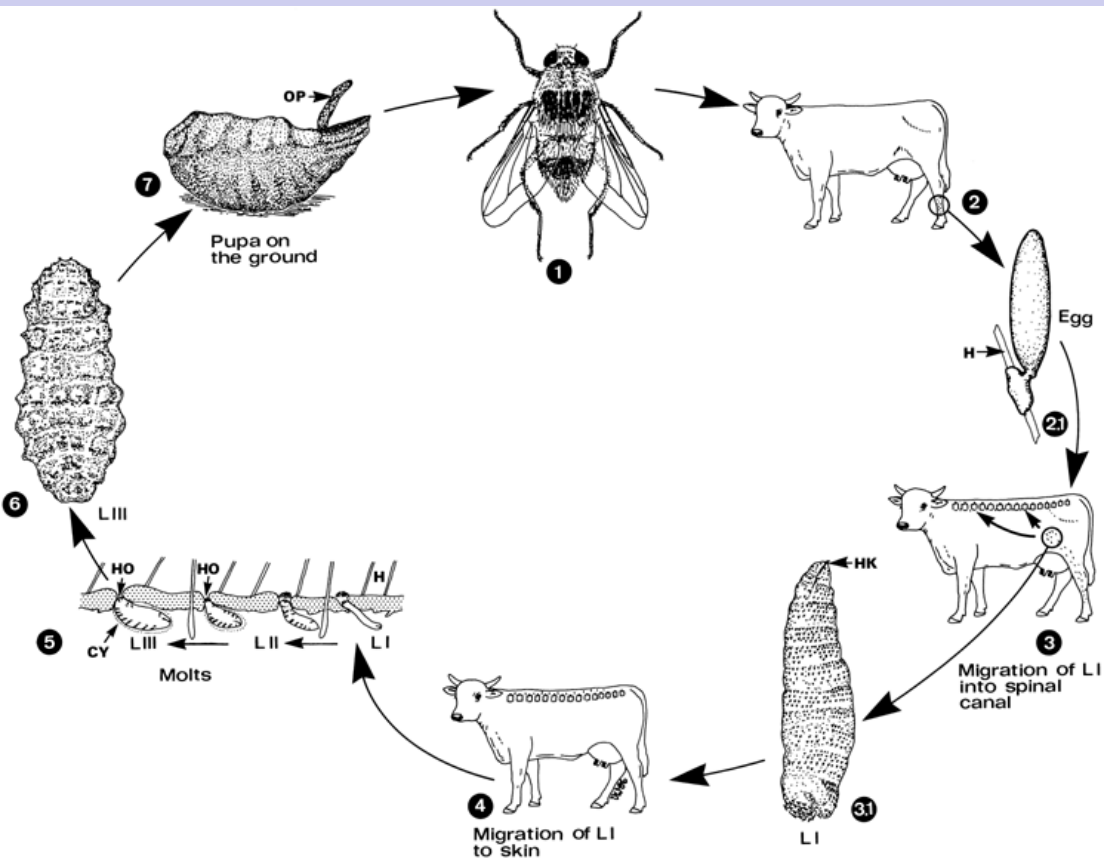
# Life cycle:



- Flies are more active during summer months particularly in the months of June and July.
- They lay eggs on the hairs of the animal particularly on the hairs of legs and rarely in other body parts.
- About 6 eggs are laid on each hair and they are attached to the hair with a structure known as claps.



- The first stage larva crawl down the hair reach the skin, penetrate the skin, and reach the subcutaneous tissue layer and starts moving upwards.
- They ultimately reach the abdominal surface of diaphragm and from there they reach the sub serous connective tissue layer of oesophagus.

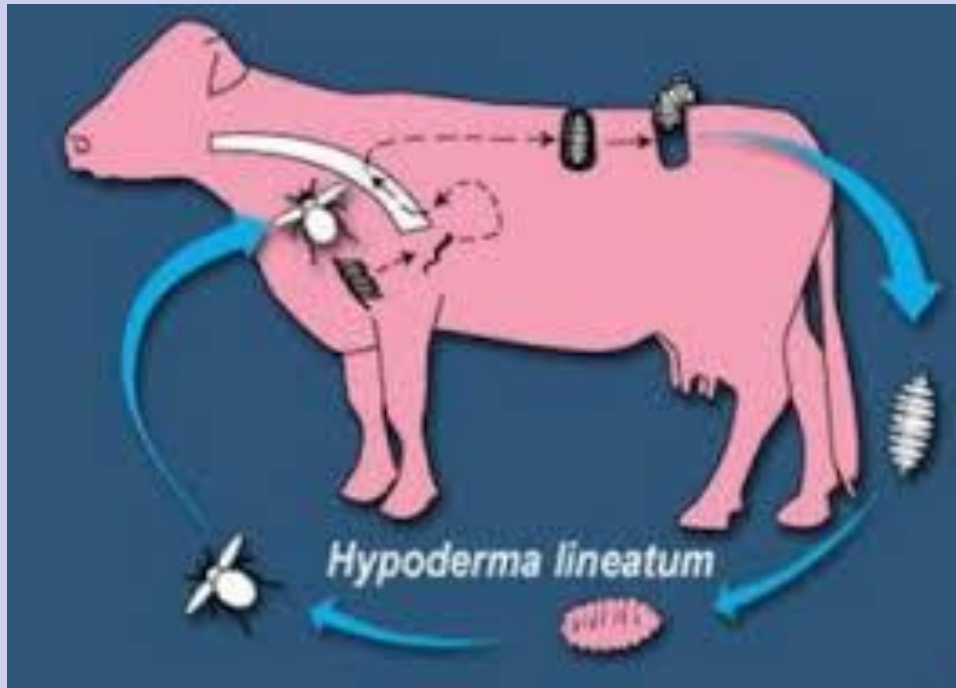


- Eggs are about 1 mm in length and the newly hatched first stage larvae are also about 1 mm in length.
- When they reach the oesophageal wall they increase to the size of about 12 mm in length and are increased to 16 mm of length when still attach to the oesophageal wall.





- They remain at this point for the whole of the summer and autumn.
- In the month of late December to February this larvae leave the oesophageal wall and start moving towards the back of the animal.



- In late winter or early spring they reach the spinal canal and sometime even enter into the spinal canal and touch the spinal cord but these larvae generally come out and again start their journey and reach the back of the animal.



- When they reach the back of the animals, swelling start forming.
- They moult twice at that site and develop to third stage larva and subsequently the larvae perforate the swelling and then perform a short of **summer salt** and place their posterior spiracle through this opening for respiration.



- They remain there for about a month, which is generally late spring and early summer.
- They wriggle out through this opening and then drop on the ground.
- They penetrate the upper layer of soil and puped below the surface of the soil.
- Adult emerges in about 30-35 days.



- A fully-grown larva is about 25 mm in length.
- A larva is 12-segmented white in colour while freshly hatched then turned into yellowish and a fully-grown larva is light brown in colour.
- Larva is 12 segmented with rows of flat tubercle and a row of spine on each segment.
- The larvae have a pair of oral hooks. Adults have a very short life span of about 2-4 weeks.



## **Habit:**

- Adults attack animals both in shed and pasture.
- They do not feed during their lifetime and die only after mating and laying eggs.

## Pathogenesis:

- Cattle are very sensitive to this flies and starts running here and there to avoid them.
- They become very irritated and do not feed properly resulting in loss of flesh and milk production.
- Larvae irritate the tissue around them while migrating and the flesh become yellowish green in colour and depreciated in value.

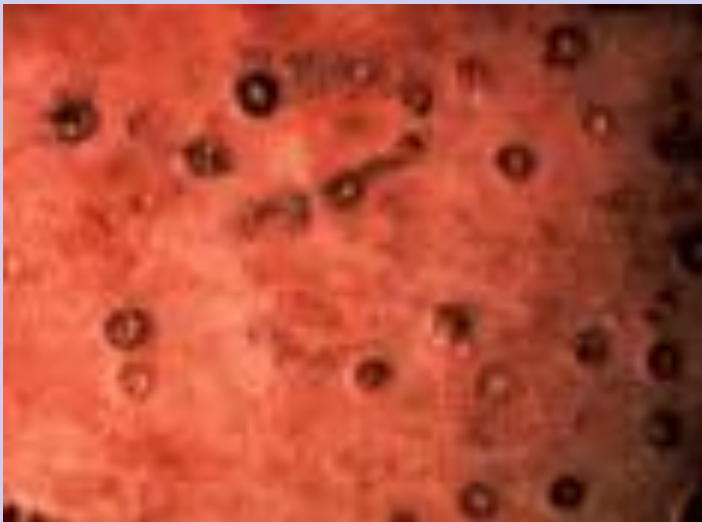


- Damage caused include discolouration of meat along the tracts of larvae. Meat may also be gelatinous; the name of **licked beef** is applied to such lesions.
- Great loss is caused to the valuable skin of the back by the perforation and the bulk financial losses due to this are very high in many countries.
- It is uncertain whether the larvae have any toxic effects on its host but animals treated for the condition show better growth and production.



## Symptoms:

- Except for poor growth and fall in milk production the animal show no appreciable symptom till the larvae appear on the back of the animal and the swelling could be felt.
- Young cattle are more frequently infected than the older animal as the younger animal once infected develop certain degree of resistance against the larvae.
- Older animals become sensitive to larvae showing anaphylactic reaction and may even abort due to this.



## Diagnosis:

It can only be done either by

1. Seeing the larvae on the back of the animal or
2. Seeing the eggs at the egg-laying site during fly season.



## Treatment:

### 1. Mechanical removal of larvae:

- This can only be done when the larvae have already reached and perforate the skin.
- The larvae can be squeezed out by pressing with two thumbs from two sides of the opening and then destroying the larvae by burning them.
- Rupture of larvae during extraction may lead to localized inflammation followed by abscess formation and some time and even generalized anesthesia.



## **2. Insecticidal treatment:**

- Old method of insecticide treatment followed till the discovery of systemic organophosphate (OP) compound was to pour insecticide solution which are mainly of plant origin and less toxic such as derris on the back of the animal when the perforation has already been done.
- Though it was a good treatment but there was chance of reinfection and the loss in already there.

- With the development of synthetic organophosphorus (OP) compounds such as Coumaphos, Neguvon *etc.* which can be used as oral drench and kill the larvae inside the body of the animal before they could reach the back and perforate the skin.
- This type of treatment is generally avoided from late December to February when the larvae is suppose to reach the spinal canal as their death in the position may lead to severe reaction causing paraplegia (paralysis of hind limb), abortion and other condition.

## **Control:**

Control of this fly is difficult. Regular dipping in insecticide solution during fly season may give some short of control but is not very satisfactory.