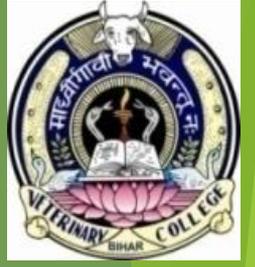




# LICE



**डा. अजीत कुमार**

परजीवी विज्ञान विभाग

बिहार पशुचिकित्सा महाविद्यालय

बिहार पशु विज्ञान विश्वविद्यालय

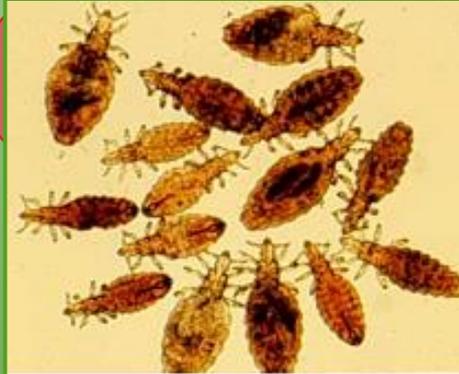
पटना-800014 (बिहार)

# LICE



**Louse** - Singular

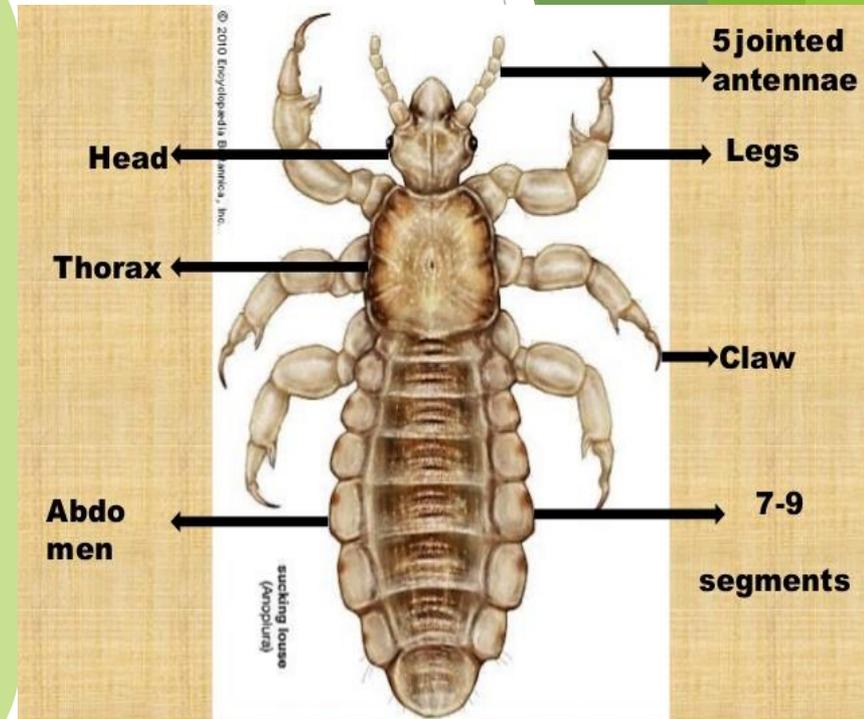
**Lice** - Plural



# LICE

## Morphological characters:

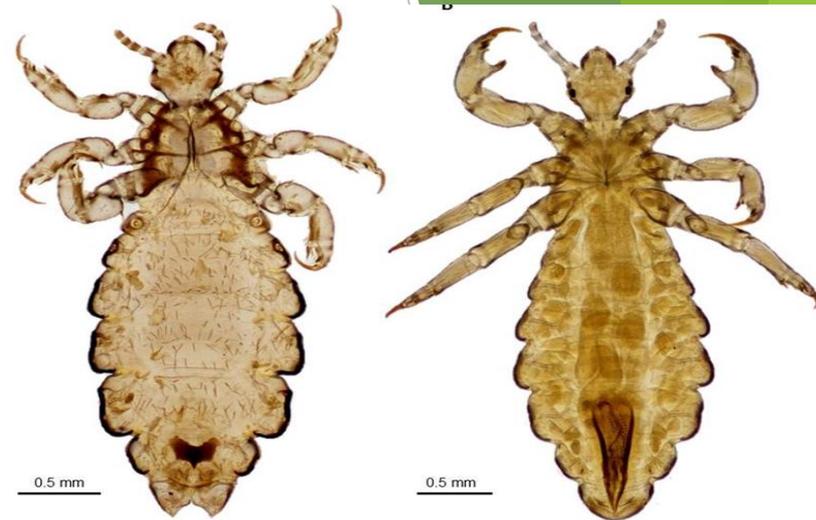
- 🕒 **Permanent ectoparasite.**
- 🕒 **Highly host specific.**
- 🕒 **Dorsoventrally flattened body.**
- 🕒 **Two five-segmented antennae.**
- 🕒 **Wingless.**



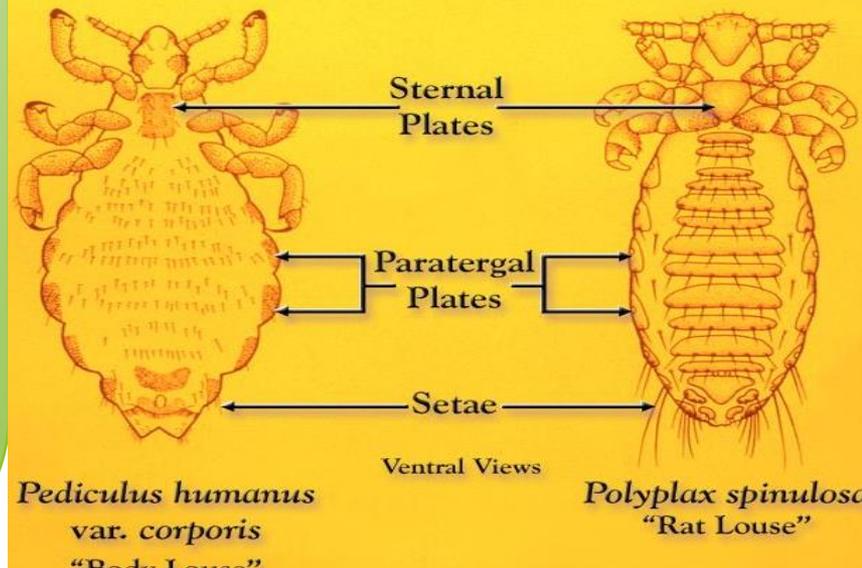
# LICE

## Morphological characters:

- ⌚ Sexual dimorphism
- ⌚ Legs terminate in claws, the lice of mammals having one claw on each leg while those of birds have two.
- ⌚ Abdominal segments often bear dark brown or black areas of thickened chitin called paratergal plates.
- ⌚ Eyes are absent or reduced but are present in the human head louse (*Pediculus humanus*) and on the human pubic louse (*Phthirus pubis*).



Class: *Insecta* > Suborder: *Anoplura*  
“Sucking Lice”



# LICE

## Two Order :

- Mallophaga
- Siphunculata  
( Syn. Anoplura)

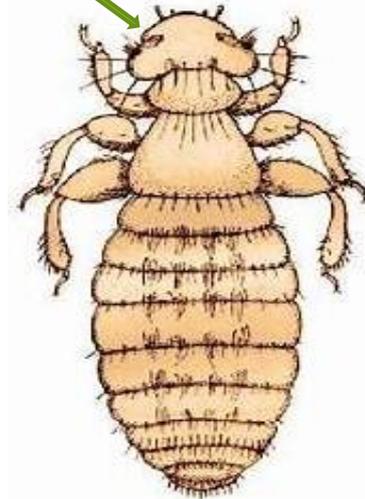
# LICE

## Order: Mallophaga

- It includes biting or chewing lice.
- Head is broad and wider than long.
- Thorax has 2 parts i.e, pro-thorax and fused meso- & meta-thorax.
- Legs bears two claws in bird lice whereas one claw in mammal lice.
- Occurs both mammals and birds.

Broad & wider head

Two claws



*Menopon gallinae*



*Trichodectes canis*

### Three sub-order:

- ✓ **Amblycera**
- ✓ **Ischnocera**
- ✓ **Rhynchophthirina**



*Haematomyzus elephantis*

# LICE

Order: Mallophaga

Suborder

Amblycera

Ischnocera

Rhynchophthirina

Family

Menoponidae

Gyropidae

Boopidae

Family : Haematomyzidae

*Gyropus*

*Heterodoxus*

*Haemtomyzus*

*Menopon*

*Menacanthus*

Family

Philopteridae

Trichodectidae

*Liperus*

*Cuclotogaster*

*Goniodes*

*Goniocotes*

*Columbicola*

*Trichodectes*

*Damalinis*  
(*Bovicola*)

*Felicola*

# Mallophaga (Biting lice)

## List of important Biting lice of mammals

Biting louse	Common Name	Important characters
<i>Damalinia</i> (or <i>Bovicola</i> )	Red louse of cattle	Reddish-yellow colour with brownish transverse bars on its abdominal segments and show parthenogenesis.
<i>Trichodectes canis</i>	Yellowish louse of dog	-
<i>Heterodoxus spiniger</i>	Common dog louse in warmer countries	-
<i>Felicola subrostratus</i>	Common louse of domestic cat	It is nevertheless, true biting lice, with ventral mouth parts and has pointed head, somewhat resembling the anoplurans.
<i>Haematomyzus elephantis</i>	-	occurs on Indian and African elephants
<i>Polypax spinulosa</i>	Spined rat louse	-



*Bovicola bovis*



*Heterodoxus spiniger*



*Haematomyzus elephantis*

# Mallophaga (Biting lice)

## List of Important Biting lice of Poultry / Birds

Biting louse	Common Name	Important characters
<i>Menacanthus stramineus</i> or <i>Menopon biseriatum</i>	Yellow body louse of fowl, turkey and peacock	Eggs, having characteristic filaments on the anterior half of the shell and operculum, are laid in clusters on the feathers near the skin
<i>Menopon gallinae</i> ( <i>Menopon pallidum</i> )	Shaft louse	Commonest poultry louse occurring usually in abundance throughout the year
<i>Cuclotogaster</i> ( <i>Liperus</i> ) <i>heterographus</i>	Head louse	It is a dangerous parasite of chicks and eggs are laid singly on the feathers
<i>Cuclotogaster</i> ( <i>Liperus</i> ) <i>caponis</i>	Wing louse of poultry	found mainly on the underside of the wings.
<i>Goniocotes gallinae</i>	Fluff louse	Smallest louse of poultry
<i>Goniodes gigas</i>	Large body louse of fowl	Characteristic triangular dark marks on the sides.
<i>Columbicola columbae</i>	Very common in pigeons and ducks.	-
<i>Holomenopon leucoxanthum</i>	Shaft louse of duck	-



*Menacanthus* sp.



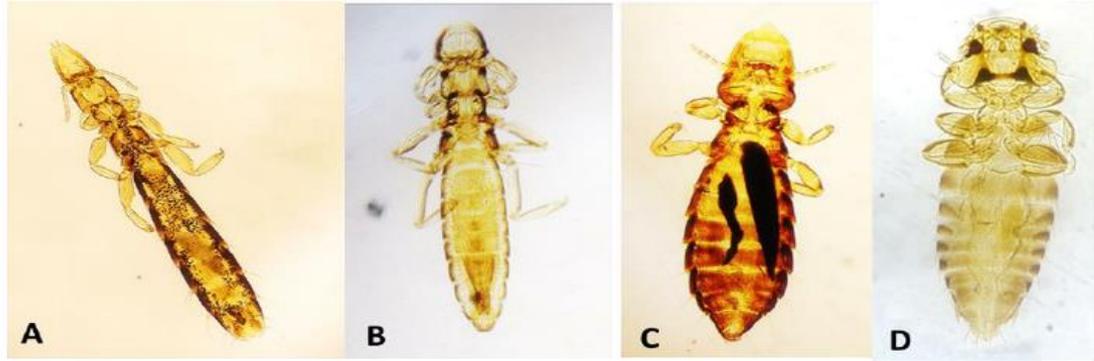
*Goniodes gigas*



*Goniocotes gallinae*

# Biting lice

## Poultry Lice

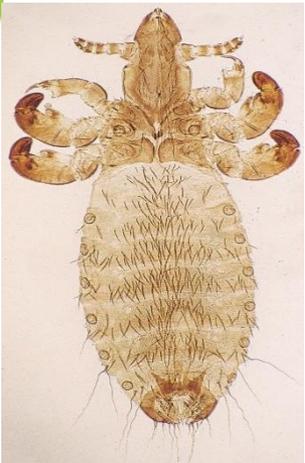


A) *Columbicola columbae* (B) *Lipeurus caponis* (C) *Oxylpeurus* spp. (D) *Menacanthus stramineus* (E) *Chelopistes meleagridis* (F) *Menopon gallinae* (G) *Goniodes dissimilis* (H) *Goniocotes gallinae*

# LICE

## Order: Anoplura

- It includes sucking lice.
- Usually long, small & pointed head.
- Slow moving and have powerful legs, each with a single large claw.
- Occur exclusively on mammals.



*Linognathus  
vituli*

### Three Families:

- ✓ **Haematopinidae**
- ✓ **Linognathidae**
- ✓ **Pediculidae**



*Haematopinus  
eurysternus*

# Sucking Lice

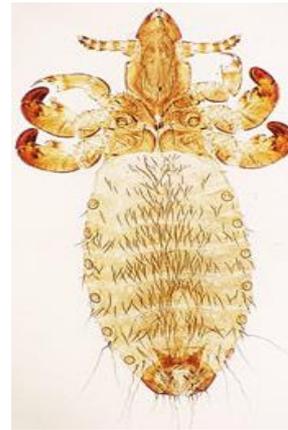
## Difference between Haematopinidae and Linognathidae Lice

Haematopinidae	Linognathidae
Short & conical head , so know as Short nosed louse	Long & pointed head, so known as long nosed louse
All three pairs of legs are almost equal in size.	First pair leg is smallest whereas 3 <sup>rd</sup> pair leg is largest
Presence of dark brown or black thickened chitin called paratergal plates , along the side of abdomen	Paratergal plates absent
Largest louse of mammal	Smaller in size



Paratergal plates

*Haematopinus tubercularis*



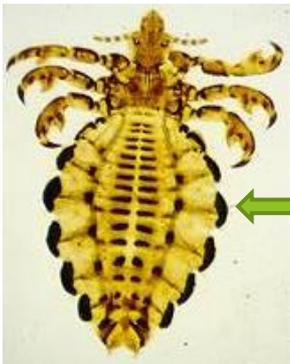
*Linognathus setosus*

# Sucking Lice

## List of important Sucking Lice and their hosts

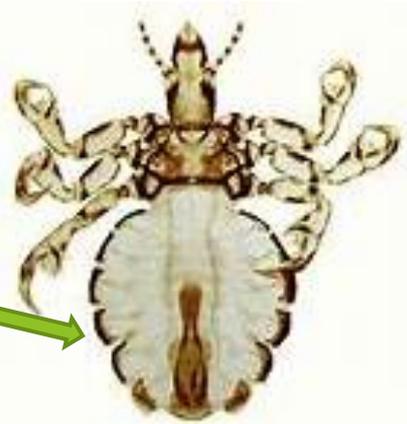
### *Haematopinus* spp. ( Short nosed louse)

Sucking louse	Host
<i>Haematopinus tuberculatus</i>	Cattle
<i>Haematopinus eurysternus</i>	Buffalo in Asia
<i>Haematopinus bufali</i>	Buffalo in South Africa
<i>Haematopinus asini</i>	Equines
<i>Haematopinus suis</i>	Very large louse of pig



*Haematopinus tuberculatus*

Paratergal plates

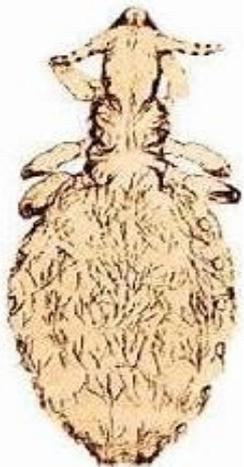


*Haematopinus suis*

# Sucking Lice

## List of important Sucking Lice and their hosts

Sucking louse	Common Name	Host
<i>Linognathus vituli</i>	(Long nosed cattle louse or blue louse),	<b>Cattle</b>
<i>Linognathus ovillus</i>	Body louse or blue louse or face louse and also most pathogenic louse of Sheep	<b>Sheep</b>
<i>Linognathus stenopsis</i>	-	<b>Goats</b>
<i>Linognathus pedalis</i>	Foot louse of sheep	<b>Sheep</b>
<i>Linognathus setosus</i>	-	<b>Dog &amp; foxes</b>



*Linognathus ovillus*



*Linognathus setosus*

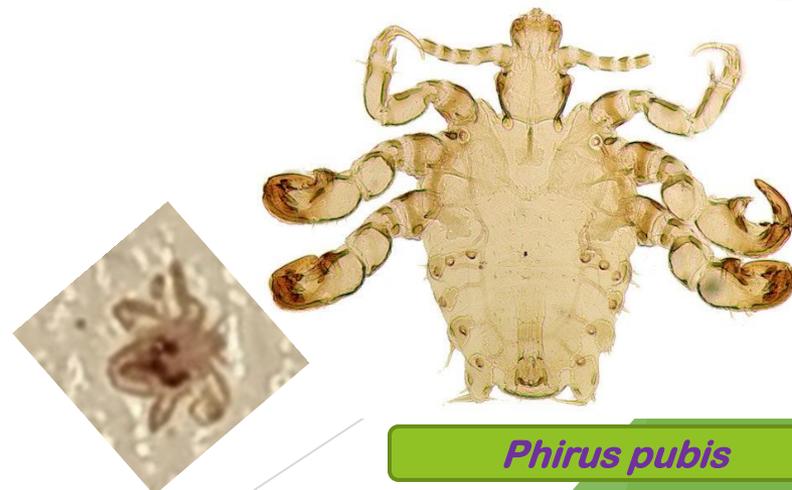
# Sucking Lice

## List of important Sucking Lice and their hosts

Sucking louse	Common name	Host
<i>Solenopotes capillatus</i>	-	Cattle
<i>Microthoracius cameli</i>	-	Camel
<i>Pediculus humanus var capitis</i>	Head louse	Human
<i>Pediculus humanus corporis</i>	Body louse	Human
<i>Pthirus pubis</i>	Pubic or crab louse	Human



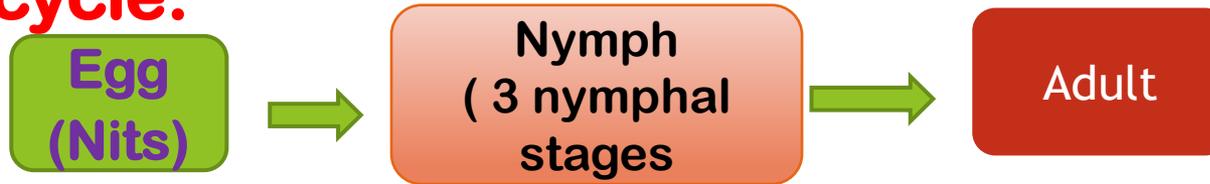
*Pediculus humanus capitis*



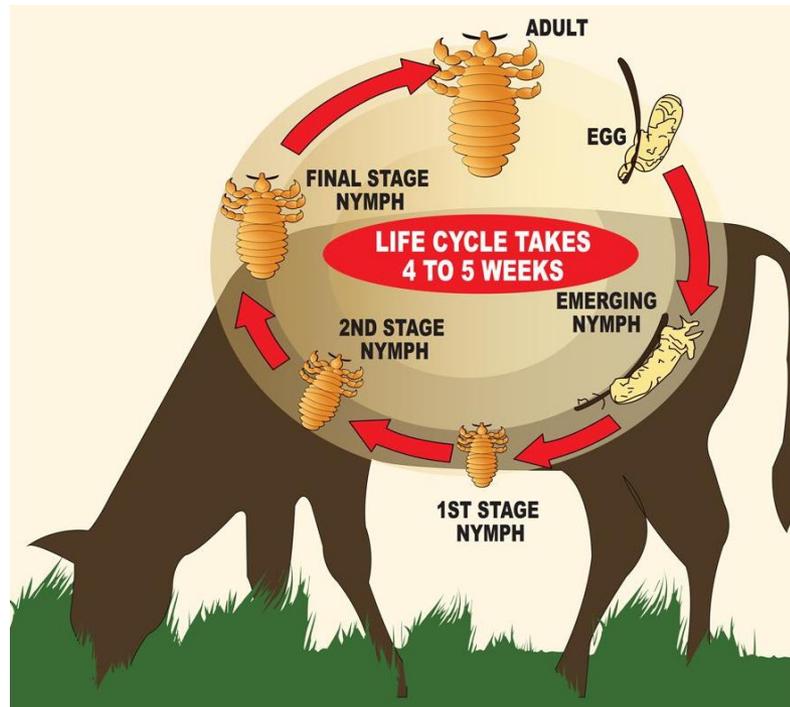
*Pthirus pubis*

# LICE

## Life-cycle:



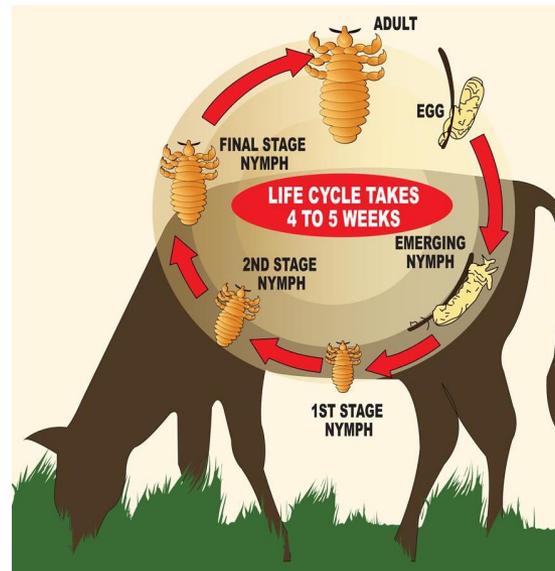
- 🕒 Female louse lays about 200-300 whitish operculated eggs (nits).
- 🕒 Egg hatches to nymph who is similar to adult but smaller in size.



# LICE

## Life-cycle:

Transmission of lice mainly occurs by contact with the infested animals/ birds



# Sucking lice

## Pathological significance of sucking lice:

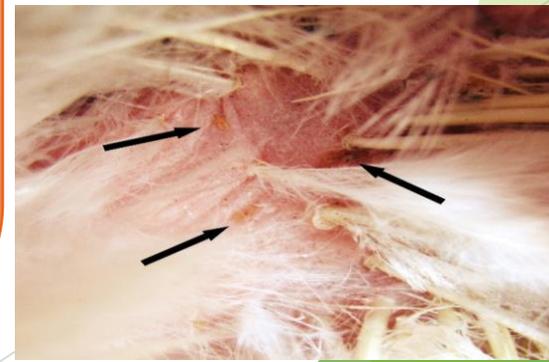
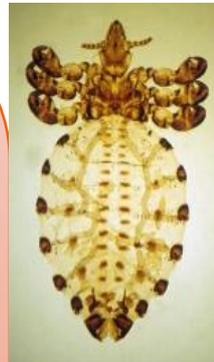
- ⌚ Sucking lice have piercing mouth parts & suck blood. Hence, heavy infestation of sucking lice can cause severe anaemia.
- ⌚ *Linognathus pedis* causes lameness in sheep.
- ⌚ Sucking lice infestation may cause restlessness, sleeplessness, reduced body condition, decrease hide quality, decrease milk production etc.
- ⌚ Excessive licking of hairs by the calves (*Haematopinus* or *Linognathus* spp.) may lead to formation of hair balls in the stomach.



# Biting lice

## Pathological significance of biting lice:

- ⌚ **Biting lice have biting and chewing mouth parts ingest out layers of the hair shaft, dermal scales and blood scabs.**
- ⌚ **Bird lice can digest keratin, so they also eat feather.**
- ⌚ **Biting lice in infested birds may cause irritation, annoyance, restlessness, injure themselves by scratching and feathers plucking, anaemia, decrease egg production, even death of heavy lice infested birds etc.**



# Biting Lice

## Pathological significance of biting lice:

- ⌚ Biting lice in infested mammals may cause, irritation, leading to rubbing against hard objects like post and wire. This results, loss of hairs, formations of wounds leading to bacterial infection and damage of hide etc.



# Biting lice

## Disease transmission:

Dog louse, *Trichodectes canis* acts as intermediate host of the dog tapeworm i.e. *Dipylidium caninum*.



*Trichodectes canis*



*Dipylidium caninum*



*Dipylidium caninum* proglottid around perineal region of dog

# LICE

## Epidemiology:

- ⌚ Lice infestation (Pediculosis) generally occur in the winter season because of longer hair on the host's coat, closer contact of animals and also lack of general vigour.
- ⌚ Lice infestation usually occurs sever in young animals/ birds.
- ⌚ Lice infestation may increase in birds after de-beaking because it preventing preening and grooming.



Severe louse infestation  
in a dog



A louse under the  
microscope

# LICE

## Control:

- ❖ **Good feeding and management practices are important measures in controlling of lice infestation.**
- ❖ **Treatment of the infested animals with suitable insecticides like Deltamethrin, Ivermectin, Amitraz etc.**
- ❖ **Two treatments at the interval of 14 days are more effective.**
- ❖ **Insecticides can be used by spraying or dipping or pour-on etc.**
- ❖ **Spraying of insecticide may be done in whole shed as well as on herd equipments.**
- ❖ **Clipping of hairs removes the eggs but it should not be done during colder months.**
- ❖ **Avoid overcrowding**





**धन्यवाद**