

Poultry Red Mites: Significance and Control Strategies

- ❖ Poultry red mite (PRM), *Dermanyssus gallinae*, an ectoparasite (lives on the body of the host) is a significant threat to egg laying hens
- ❖ In the UK, 60 – 80% of commercial egg laying facilities may be infested with PRM
- ❖ May be present all year round but highest densities occur during hot and humid seasons
- ❖ Conditions in poultry houses (temperatures between 10- 35 °C and relative humidity >70%) favour development and reproduction of PRM
- ❖ Even when birds are removed from premises PRM may survive for long enough, up to 8 months without a meal, to infest new flock
- ❖ Serves as vector for transmission of poultry pathogens
- ❖ Occupational hazard for poultry workers with attacks on poultry workers well recognized

Consequences of Infestation

- significant stress to hens due to itching and disturbed sleep patterns
- birds become severely anaemic
- increased feed and water intake
- decline in egg production and shell quality
- death in severe cases

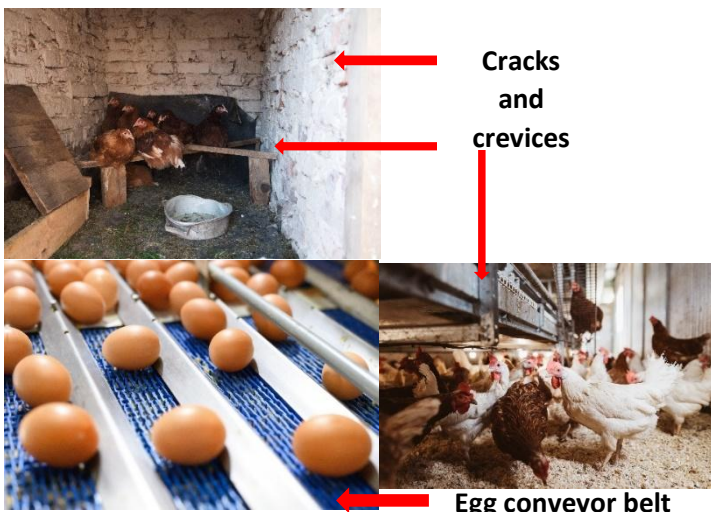
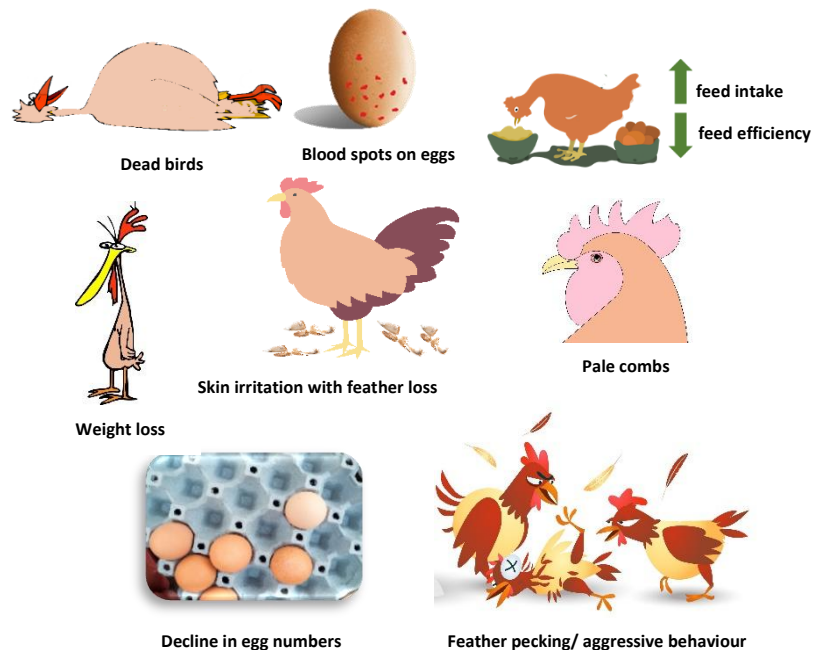


Dermanyssus gallinae

Places to look for

- Daytime hiding places – cracks and crevices in walls, hen houses, underneath perches, nest boxes, cardboard boxes, egg conveyor belts, transport cages
- Most active 5 – 11 hours after darkness when it visits its host to feed
- It spreads to other poultry houses via transport crates or cages

Signs to look for



Egg conveyor belt

Integrated Pest Management (IPM)*

- ◆ Conventional control of PRM involves use of synthetic acaricides
- ◆ But resistance to synthetic acaricides is increasing
- ◆ Very limited amount of synthetic acaricides are available; many withdrawn from UK and

EU due to consumer and user safety regulations

- ◆ IPM is a sustainable strategy developed by the Mite Control project and consists of 8 steps as follows

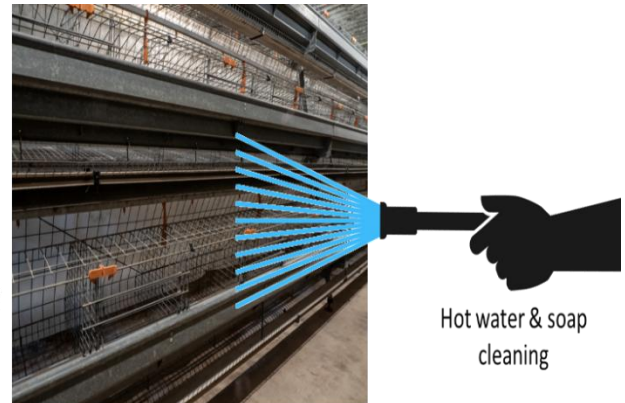
Step 1. Prevention And Population Suppression

- Preventing new populations of *D. gallinae* from entering and spreading in the layer houses

During Production



Between Production



Step 2. Monitoring population

- Mite Monitoring System, Manual Traps, Automated traps

Overview for the interpretation of monitoring results					
Infestation level	MMS (mean score)	Stick traps (mean score)	Tape traps (% of positive traps)	Cardboard traps (mean counts)	AviVet Red Mite Trap (mean weight in mg)
Low	< 1	< 1	< 20%	< 250	≤ 50 mg
Medium	1 - 2	1 - 2	20 - 50%	251 - 500	51 - 250 mg
High	> 2	> 2	> 50%	> 500	> 250 mg

TIP: Compare with previous results to see the evolution of red mite infestation in your poultry house

(Source: <https://farmpep.net/project/mitecontrol-project-integrated-pest-management-approach>)

Step 3. Treatment decisions based on monitoring and thresholds

- Thresholds is point at which a pest population must reach before **chemical treatment** is applied
- Currently no threshold for PRM control but Mite Control project is currently working to determine one



Step 4. Non Chemical Treatment Methods

- Use of non chemical treatments before chemical acaricide is applied. They can be used preventatively (step 1) or curatively when the mite population has exceeded threshold



Step 5. Use of specific chemical acaricides

- To be used when preventative and curative treatments are insufficient



Step 6. Reduction in use of pesticide

- Using pesticide as the last resort, targeted delivery eg in drinking water and combination of chemical treatments or chemical and non chemical treatment



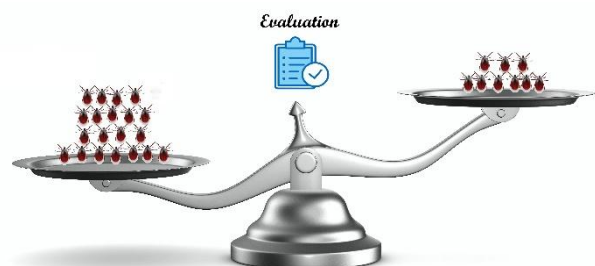
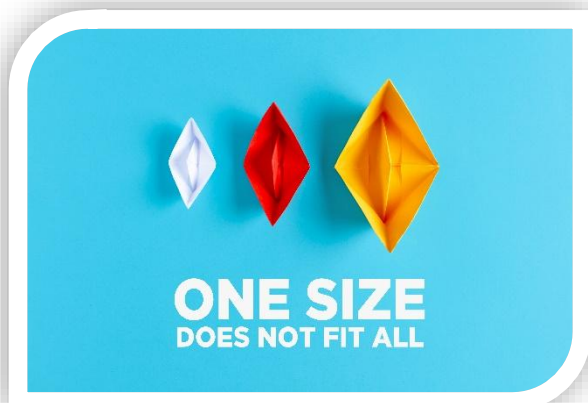
Step 7. Antiresistance strategies

- Using the correct dosage and reducing pesticide use as described in step 6



Step 8. Evaluation

- One IPM strategy may not work for all farms therefore necessary to evaluate the efficacy
- Each step of the IPM strategy must be monitored and evaluated by monitoring the PRM populations



*For details on each step of IPM please refer to technical article *Control of Dermanyssus gallinae, the poultry red mite using Integrated Pest Management*