The poultry red mite
Current situation and integrated control methods

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Objectives
The objectives of this review about the poultry red mite, *Dermanyssus gallinae*, are:

- Describe the lifecycle and compare the morphology between the mite and *D. sylviarum*.
- Assess the current situation in Europe: economic and health importance.
- Explain the methods used to detect the presence of the mite in the environment.
- Mention and explain the control methods currently used and future prospect.

**Figure 1.** Lifecycle of *D. gallinae* (Sparagano et al., 2014)

**Table 1.** Main morphological differences between females (Di Palma et al., 2012)

<table>
<thead>
<tr>
<th><em>Dermanyssus gallinae</em></th>
<th><em>Ornithonyssus sylviarum</em></th>
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</thead>
<tbody>
<tr>
<td>Chelicerae are long, thin and pointed end with no evident chela.</td>
<td>Chelicerae are elongate, with well developed and distinct fixed and movable digits.</td>
</tr>
<tr>
<td>Genitoventral (epigynal) shield is broadly rounded posteriorly.</td>
<td>Genitoventral (epigynal) shield is attenuate and narrowly rounded posteriorly.</td>
</tr>
<tr>
<td>The dorsal shield is more smoothly narrowed.</td>
<td>The dorsal shield is abruptly narrowed posteriorly.</td>
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</tbody>
</table>

**Figure 2.** Number of laying hens per country in millions (2012) and the percentages of farms infested by *D. gallinae* (George et al., 2015)

**Why it’s so important?**
- **Costs**: €130 million/year in European egg industry.
- Causes weight losses, anaemia or death (high infestations).
- ↑ self-grooming and head scratching = ↓ animal welfare.
- ↓ egg quality: blood spots on the shell.
- Involved in the transmission of pathogenic agents.
- Human health: opportunistic parasite.

**How to detect the mite on the environment?**
- **Observation**: blood spots on eggs.
- **Traps**: manual count
  - Corrugated cardboard placed in perch or others.
- **Automated mite counter**: in development.

**Integrated control example**
- Empty and clean facilities
- Physical control methods
- Plant derived products (↑ infestations)

Apply methods to detect the mite on the environment and monitorize its populations.

**Conclusions**
- *D. gallinae* is an hematophagous mite of poultry spread worldwide causing important economical losses.
- Short lifecycle eases spread.
- It’s important to distinguish *D. gallinae* from others mites (like *Ornithonyssus sylviarum*) to apply adequate control methods.
- There are different methods for monitoring and control.
- Alternative control methods are necessary due to the emergence of synthetic acaricides resistance.
- New control methods are being investigated, like vaccines, which needs more research to be applied.