The Poultry Red Mite

Dermanyssus gallinae (De Geer, 1778)

A small pest that packs a big punch!

The Poultry Red Mite (PRM) is a small pest that packs a big punch within the EU egg industry in terms of production losses and control costs (see figure 1). To maintain and optimise both production and hen health and welfare we need to hit back, and hit back hard and fast!

Poultry Red Mite (PRM):

- Is the most significant pest of egg laying hens in Europe.
- Cost EU egg producers € 130 mill/year in 2004, and probably more today.
- Infests 100% of flocks in some countries under more susceptible systems.
- Also threatens domestic fowl, companion animals, livestock and human health (allergic reactions).

Infestation of poultry with PRM leads to:

- Increased stress in birds, including disrupted/altered behaviour and increased aggression.
- Decreased egg production and reduced egg quality through shell-thinning and blood-spotting.
- Blood loss, from mite populations up to 500,000 per bird, resulting in anaemia and even death.
- Spread of poultry pathogens of bacterial and viral origin (see table 1).

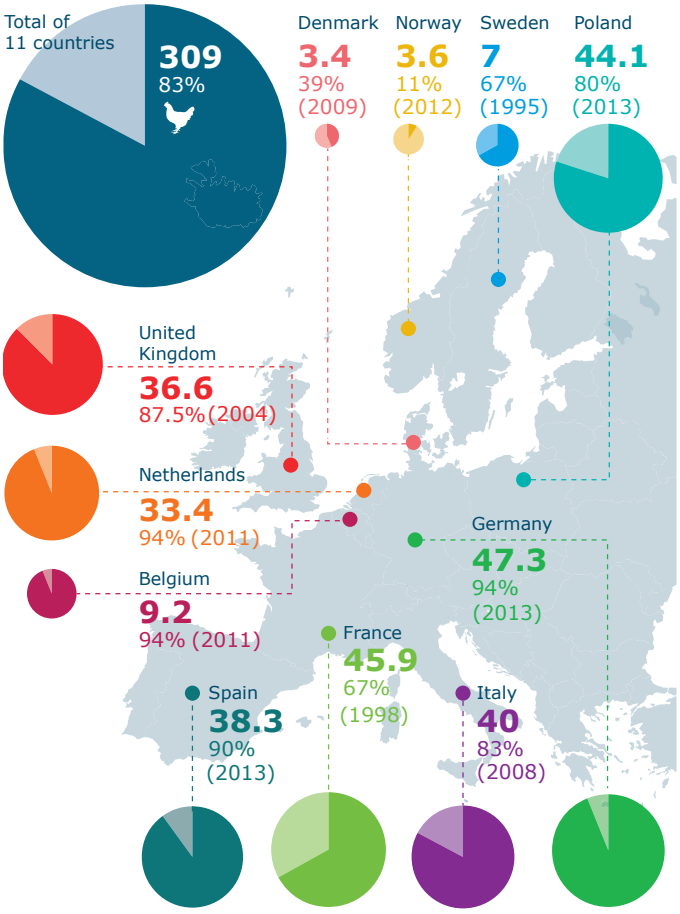
Table 1 Pathogens spread by Poultry Red Mite

Bacteria	Viruses
Salmonella spp	EEE.WEE, VEE (togavirus)
P. multocida (fowl cholera)	St. Louis Encephalitis (arbovirus)
Chlamydia spp	Fowl Pox
Borrelia anserine	Avian leucosis
E. rhusiopathiae	Newcastle disease (paramyxovirus)
Listeria monocytogene	
Coxiella Burnetti	

Control of PRM depends largely on synthetic acaricides but is failing because:

- Mites spend most of their lives hidden away in hard to reach cracks and crevices.
- Few active ingredients are available for use, especially when birds are in lay.
- Consumers and retailers are increasing their demand for pesticide-free produce.

Figure 1 Number of laying hens per country in millions (2012) and the percentages of farms with Poultry Red Mite



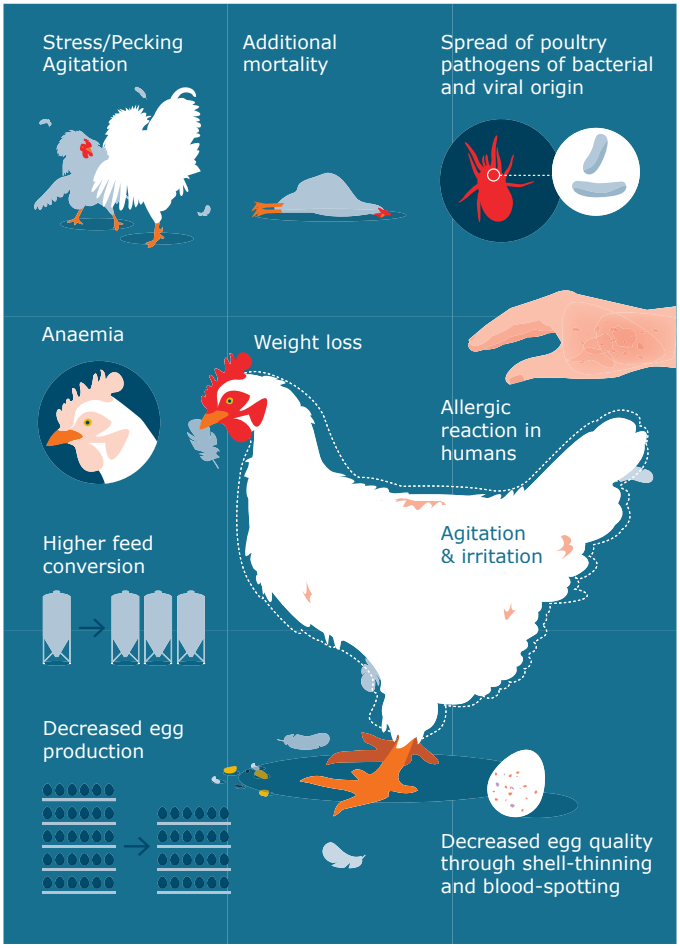


Figure 2 Effects of a Poultry Red Mite infestation in a layer house

To win the fight against PRM a more sustainable control method is essential through such as a 'One Health' approach. To achieve this a financial commitment from the EU commission is imperative to:

- Develop a region-wide and multi-faceted research-industry network to unite those working on PRM control throughout Europe.
- Support promising, innovative and collaborative research to design and develop improved PRM control strategies throughout Europe.

Without urgent action and significant investment in these areas the present high pest status of PRM is likely to explode in the near future as:

a Evidence suggests that PRM thrive in more structurally complex systems which favour their reclusive life-style and become more difficult to treat. Recent trends in the EU, away from structurally simple and easily treatable conventional cages for laying hens, may exasperate problems with PRM.

b PRM attacks a whole range of hosts including canaries, horses, rodents and humans. Attacks on humans are on the increase and may be linked to diseases such as Lyme and Bartonella. PRM infestations increase labour costs in poultry production and are rapidly becoming an occupational hazard.

c Hens infested with PRM have been found to be more aggressive. The severity of injuries resulting from such behaviour is currently limited by beak-trimming, which is scheduled to be banned across several EU member states in 2016. Control of PRM should be prioritised ahead of this ban to reduce the risk of fatalities due to mite-driven aggressive behaviour in non-beak-trimmed birds.

Within Europe the expertise exists to mount a multi-faceted, fully integrated and concerted counter-attack on 'the small pest that packs a big punch'. Many isolated research groups have contributed greatly towards improved control providing encouragement for the future prospects emerging. Nevertheless, as the facts and figures show we need to hit back hard at PRM. Now it is the time to fight back against a pest that has been allowed to punch above its weight for too long.

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