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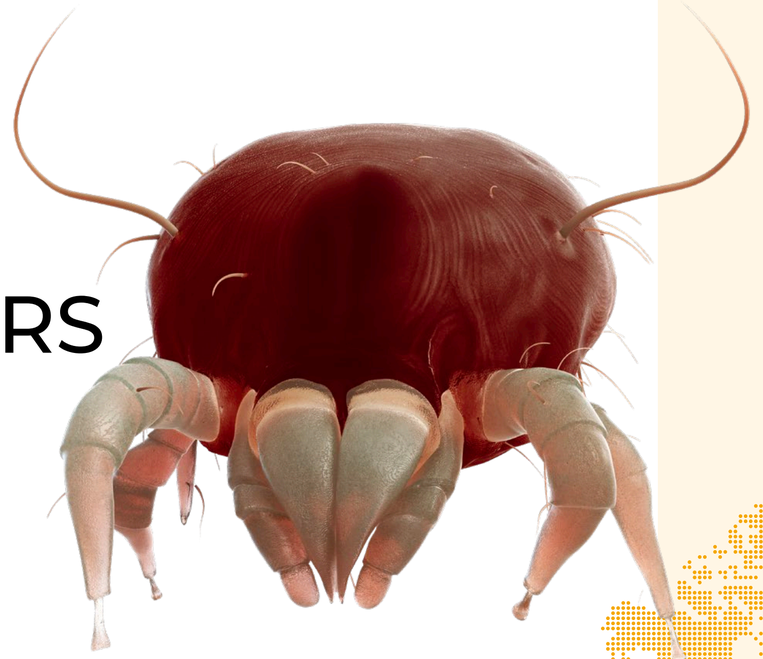
POULTRY MITES

A MAJOR OBSTACLE FOR EGG PRODUCERS AROUND THE GLOBE



ENG

Among all the ectoparasites found in poultry, mites are considered to be the most harmful ones.

The two main types of mites are commonly referred to as the poultry red mite (*Dermanyssus Gallinae*) and the northern fowl mite (*Ornithonyssus sylviarum*). However, it is the poultry red mite (*Dermanyssus Gallinae*) in particular that has been identified as the most detrimental to laying hens.

***Dermanyssus Gallinae* is found globally, except in North America, where *Ornithonyssus sylviarum* is predominantly distributed, just like in south America and some parts of Asia.**

Numerous reports indicate the presence of both mite species in several countries, including Brazil, Argentina, India, and China.

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Poultry red mites (*Dermanyssus Gallinae*) are nocturnal parasites, active during the night, where they feed on the birds' blood. During the daytime, they hide in various gaps and cracks and crevices.

This behavior makes treating red mites more challenging and complex compared to other mite species like the northern fowl mite (*Ornithonyssus sylviarum*). Unlike the red mite, the northern fowl mite completes its entire life cycle on the host, specifically in the feathers and down surrounding the cloaca area and is able to survive for short period of time off the host.

Therefore, treatment should be directly applied to the birds.

Birds can undergo various methods of treatment, such as spraying, dusting, or dipping, depending on the size of the flock and housing system.

In contrast, the poultry red mite can survive for extended periods in the environment without being on a host bird or even consuming a single meal of blood.

This indicates that any treatment for *Dermanyssus Gallinae* must be administered both and within the poultry house and equipment and if needed on the birds themselves.

Consequently, even after removing the birds, the infestation will persist in the poultry house for a significant duration if proper treatment is not applied. Moreover, the extended period of egg production provides ample opportunity for red mites to multiply and cause extensive infestation in poultry farms.

Under optimal conditions (ambient temperatures ranging from 25 to 30 ˚C and a relative humidity of 60 to 70%), the life cycle of a red mite, from egg to adult, can be completed within a span of just 7 days.

Farmers in Europe, the Middle East, and Asia are particularly affected by the negative impact of these mites. Not only do they experience losses in production, but they also face health and financial damages due to the infestation. Unfortunately, the severity of this problem is often underestimated.

In Europe, the estimated losses caused by red mite infestation range from 0.50€ to over 2€ per laying hen per year, depending on factors such as infestation intensity, housing system, and control methods.

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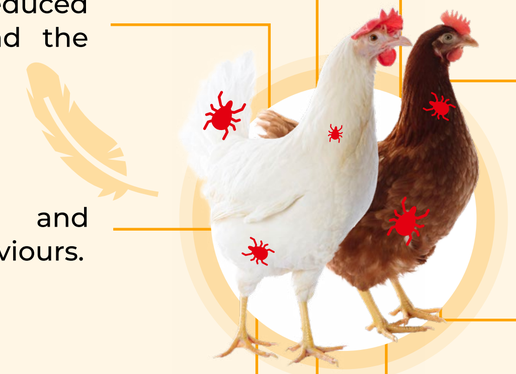
The mite infestation leads to several significant consequences, including:

1. Restlessness and distress among the flock, particularly at night and in the nesting area.
2. Irritation of the skin, reduced quality of plumage, and the occurrence of dermatitis.
3. Feather-pecking and cannibalism behaviours.
4. Weight loss and anaemia, indicated by pale wattles and combs.
5. Decreased egg production.
6. An increase in the number of second-grade eggs.
7. The transmission of poultry diseases such as salmonella, Newcastle disease, Pasteurella, etc.
8. Mortality in extreme infestation cases.
9. Health problems and stress for the farm staff, including dermatitis and allergic reactions.



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Main differences between Northern Fowl Mite (*Ornithonyssus sylviarum*) and Poultry Red Mite (*Dermanyssus Gallinae*)

Differences	 Northern Fowl Mite *(Ornithonyssus sylviarum)*	 Poultry Red Mite *(Dermanyssus Gallinae)*
Appearance	In the plumage particularly in the vent region	At birds during nighttime for blood feeding / in the house and equipment as their nests
	Mainly Under moderate weather conditions	Mainly Under Hot weather conditions
Life Cycle	Permanently on host	On the host and in the house and equipment
Survival without host	3 – 4 Weeks	Up to a year
Treatment	Just at birds	Mainly at house and equipment and if needed at birds

Treatments against poultry red mite (*Dermanyssus Gallinae*)

Treatments for combating poultry red mite can be categorized into two groups: **conventional chemicals** and **alternative solutions**.

1 Conventional treatments:

The most commonly used chemicals to combat mite infestations are synthetic acaricides, such as Organo Phosphates, Carbomates, and Pyrethroids.

However, it is important to note that the effectiveness of these chemicals and their application success are becoming increasingly questionable due to several issues.

One major concern is the development of resistance by red mite populations against acaricides, which has been an ongoing problem for several years now.

This resistance development can render the treatments almost ineffective. The use of higher dosages also poses a risk to the health of both birds and consumers, as it can lead to the presence of residues in eggs and meat.

Moreover, the constant changes in legislation within respective countries and the limited number of products licensed specifically for red mite control make the situation even more challenging for farmers in their quest to manage this pest.

In the past few years, there has been a notable advancement in the effectiveness of products containing chemical compounds like “Isoxazoline” in combating poultry red mite. However, one drawback is the high cost and the need for repeated treatments.

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When using chemical conventional treatments, there are some general recommendations to consider:

1. Before applying a product, it is advisable to have specialized veterinary laboratories test its effectiveness through a resistance test.
2. Avoid using the same acaricide repeatedly.
3. Follow the manufacturer's instructions carefully and apply the treatment properly.
4. Depending on the structure of the poultry house, it is important to target the mites directly and target them in cracks and gaps during the treatment process.
5. Apply the treatment during periods of darkness when the mites are active and outside their hiding places.
6. It is essential to prioritize the health and well-being of the animals while implementing these treatments.

2 Alternative treatments:

To address the aforementioned issues and overcome the challenges associated with traditional chemicals and acaricides for combating poultry red mites, innovative alternative solutions have emerged in recent times.

For instance, It is widely recognized that some "essential oils" obtained from plants like garlic, neem tree, thyme, and tea possess toxic properties against red mites.

Building upon this knowledge, a variety of products in the form of drinking and feeding additives have been introduced into the market.

Nevertheless, it is crucial to acknowledge that there could be possible side effects, and further research and practical knowledge are required to refine such approaches.

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A widely used and effective method for combating poultry red mite in Europe is the application of "Diatomaceous earth and silica-based products". This physical treatment involves blocking the joints between the mite's chitin shell, ultimately immobilizing them.

Additionally, when silicate dust enters the respiratory system of the mites, it leads to suffocation.

However, it is crucial to select the appropriate product, mixture, particle size, pressure, and application method for a successful treatment.

This method does not present a danger of intoxication for birds or humans. Nevertheless, the dust particles can lead to stress and health problems for both birds and staff.

The latest products, which have a reduced tendency to generate dust and adhere more effectively to surfaces, appear to be more suitable and efficient.

To achieve a successful treatment with silica-based products, it is essential to carefully select

- The appropriate product.
- Mixture.
- Particle size.
- Pressure.
- Ensure proper application.

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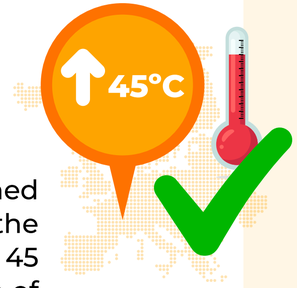


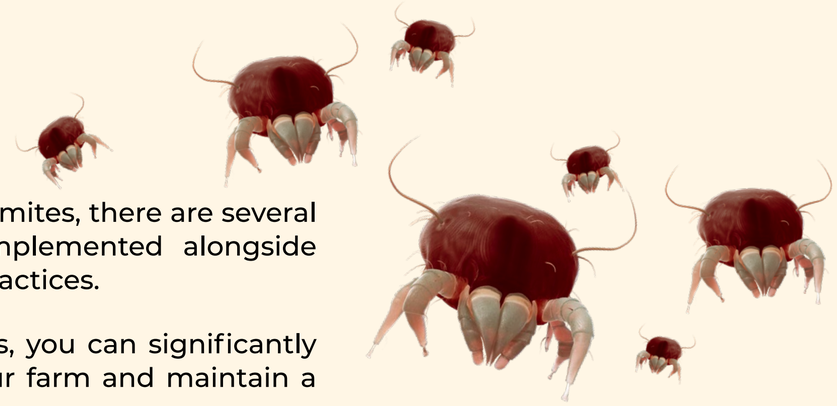
In recent times, "Heat treatments" have gained popularity in European countries due to the understanding that temperatures exceeding 45 °C are fatal for poultry red mites at any stage of their life cycle, from eggs to adults.

The process involves raising the temperature inside the empty poultry house between consecutive laying cycles to above 45 °C and maintaining the temperature for an extended duration for example several days.

It is crucial to consider the melting point of plastic equipment components and to conduct these treatments under the guidance of experts, exercising utmost caution.

This technique has the potential to be completely successful when executed correctly. Its success is attributed to a combination of factors, including the intensity and duration of elevated temperatures, as well as the level of relative humidity.

General Recommendations

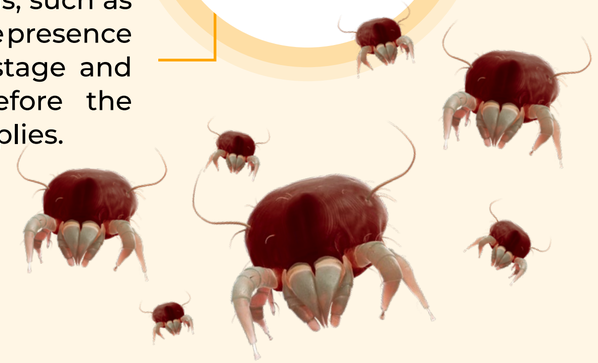


In order to effectively control the infestation of red mites, there are several simple and essential strategies that can be implemented alongside biosecurity measures and hygiene management practices.

By implementing these general recommendations, you can significantly reduce the impact of red mite infestations on your farm and maintain a healthy environment for your birds.

These recommendations include:

1. Develop a unique and customized approach by combining different treatments that are suitable for your specific farm and housing system.
2. Minimize the opportunities for mites to hide in equipment and farm structures by implementing proper cleaning and maintenance procedures.
3. Utilize monitoring tools, such as mite traps, to detect the presence of mites at an early stage and initiate treatment before the mite population multiplies.
4. Administer treatment immediately after removing the birds from the area to prevent mites from finding refuge in cracks and crevices.
5. It is recommended to use an effective treatment designed to target all mite stages including eggs.
6. Take preventive measures to avoid reinfestation of red mites in your farm, including careful consideration of rearing practices, construction of houses, transportation vehicles, staff hygiene, visitor protocols, and potential interactions with wild birds and animals.



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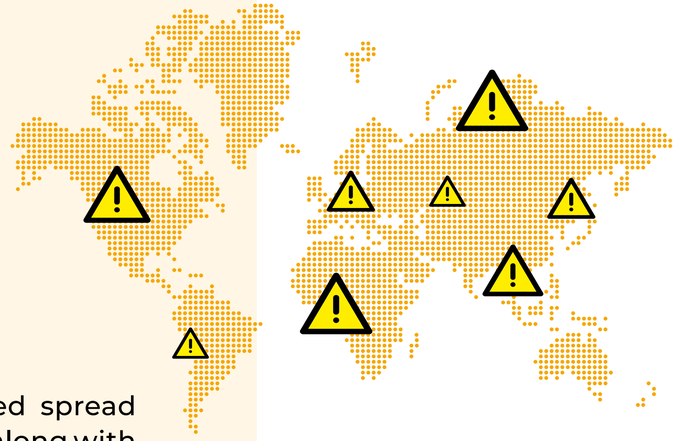

Apply a treatment as soon as you identify the initial presence of mites and before their population escalates.

Conclusion

The rapid reproduction of mites and their increased spread across different regions as a result of climate change, along with the challenges in finding efficient methods to control them and their role as carriers of diseases, highlight the significance of mites as a serious threat in the poultry sector.

Unfortunately, the current treatment methods which are available are not effective enough to keep red mite infestation under control in many poultry farms worldwide.

Hence, additional research and advancements in treatments for fowl mite are necessary to further combat this issue.

There are a variety of straightforward and fundamental methods that can prove highly efficient in managing infestations of the red mite. Nevertheless, effectively managing mites continues to be a significant obstacle in ensuring the welfare and performance of laying hens.

To effectively monitor the severity of infestations on your farm, employ tools such as adhesive mite traps or cardboards.

For more information and further toolbox articles, please visit our website ***www.lohmann-breeders.com*** *or contact us directly:*

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