Visible health
Comprehensive solutions to prevent foot pad dermatitis.

Prevention first.
The poultry industry focuses on healthy and safe food, invests a lot of effort to reduce the risk of illness and loss of performance, as well as ensuring the well-being of animals in all parts of the food supply chain. One important parameter of the good well-being of animals is the absence of foot pad dermatitis.

**Why worry about foot pad dermatitis?**

Foot pad dermatitis is a type of contact dermatitis that affects the plantar regions of the poultry feet. Deep ulcers may lead to abscesses and thickening of underlying tissues and structures (Greene et al., 1985). The incidence and severity of foot pad dermatitis is of great concern to the poultry industry because it leads to pain and injury in birds.

- **Authorities prescribe good welfare of animals**
- **Foot pad dermatitis is a key animal welfare indicator at processing**
- **Economically-speaking healthy chicken feet (paws) bring more profit to poultry producers**

This condition causes not only downgrades and condemnations of saleable chicken paws, but also as the lesions can cause walking difficulties and pain to birds, foot pad dermatitis constitutes an animal welfare concern especially in Europe and the United States.

Furthermore, the occurrence of foot pad dermatitis is now used as an audit criterion in welfare assessments of poultry production systems in many regions of the world.

Lohmann’s aim is to assist the poultry industry to produce unblemished paws for both increased profit and compliance, with high animal welfare.

**Scoring system for foot pad dermatitis lesions**

Measuring foot pad dermatitis at slaughter is a regular tool of inspectors and auditors. The scoring of chicken paws to monitor the incidence rate and seriousness of foot pad dermatitis during the cycle assists producers to filter out critical points which are out of range and thus implement interventions in time.

The following pictures demonstrate one example of scoring foot pad dermatitis:

![Score 1: No signs of foot pad dermatitis](image1)

Score 2: Redness, swelling, small necrosis areas.

![Score 2](image2)

Score 3: 1/4 of foot pad is necrotic.

![Score 3](image3)

Score 4: Half of the foot pad is necrotic.

![Score 4](image4)

**Factors influencing foot pad dermatitis**

Factors influencing foot pad dermatitis show a complex system which is to be managed by harmonization of the supply chain and through farm and health management. Though the inspection of foot pad dermatitis takes place in the slaughter house, the application of controlling measures shall start already before placement.

Some influencing factors may be monitored and adjusted with little cost and effort while others require big investment. Many, however could offer significant changes in foot pad dermatitis and general health as well as performance!

**A complex system management is necessary in the supply chain**

**Main factors influencing foot pad dermatitis**

In order to avoid foot pad dermatitis, the litter shall be kept in good condition with low moisture content. The majority of the factors below primarily have a strong impact on litter quality by means of causing humidity and wetness. The choice of a fast growing breed may also increase the risk of having higher foot pad dermatitis prevalence during rearing.
The careful farmer is capable of managing the litter which breathes the humidity and ammonia in the house, and keeping the humidity load to litter under control with techniques surrounding adequate flock density, decreasing stress (lighting, water management, hygiene, feed, disease), and good ventilation. This way, the birds are not exposed to wet surfaces, the skin of the feet does not become too soft and sticky, and is thus not vulnerable.

On the contrary, in the every day routine of farming foot pad dermatitis may occur at any time in the life of the birds. However in many cases micro injuries already appear in the first 2 weeks of life. This can be recognized by well-trained eyes. In a few days these injuries become visible and they then become painful to the chicks. It is a gate to bacteria and serious health problems can occur easily. Once this stage has been reached, it is almost impossible to improve the condition of the foot.

**Hint:** The level of foot pad dermatitis will also change over the seasons, with lower levels seen in warmer and drier months!

**How can you beat foot pad dermatitis?**

Use Lohmann’s unique expertise to develop a preventive and control strategy to minimise the occurrence of foot pad dermatitis in the following four areas:

1. **Proper farm, flock, hygiene and environmental management programs**

   Good hygiene techniques guarantee the low incidence of disease and improved performance during the cycle. If it is known which parameters to consider and when, the systematical collection and analysis of information on these factors ensures a good likelihood that the necessary intervention measures can be implemented in good time.

   **Services**

   **Fit for audit monitoring:** The evaluation of critical control points measures problems on farms. The scoring system designed for auditing serves as a foot pad dermatitis screening test.

   **Trainings:** Great effort is put into harmonization in supply chain in order to keep the stress on litter low, and litter management.

2. **Nutrition and feeding programs**

   The feed delivered to farms shall be optimized for a healthy gut by considering the chick production targets and conditions. With professional feed formulation the risk of alkalization of litter due to high exposure to undigested materials as well as heavy load on fermented protein, liquid faeces, diarrhea and consequently wet litter can be minimized while maintaining

   **Services**

   **Feed Formulation:** Results in a low incidence of diarrhoea by applying accurate knowledge of raw materials and additives according to defined conditions and production targets of flocks.

   **Products**

   **Zy and Enzy:** Non-starch polysaccharides (NSPs) are indigestible and entrap nutrients in plant cell walls. NSP-degrading enzymes release these nutrients. An additional reduction of digesta viscosity further helps to improve the digestibility of fat and other nutrients while disorders such as sticky droppings and wet litter are alleviated.

   **Amino Acids:** By the harmonized supplementation of amino acids, the crude protein level of the diets can be significantly reduced. It results in lowering excessive water consumption and contributes to less incidence of fermentation of excessive protein in the gut which is one prime source of dysbacteriosis and consequently diarrhoea. This helps to maintain the litter in good condition and prevent “wet litter” syndrome.

   **Trace Elements:** Highly bio-available chelated minerals improve the epithelial tissue strength of your poultry, making them more resistant to wetness, excoriation and bacterial attack, and consequently to footpad issues.

   **Biotin:** Biotin provides major assistance in the replacement of epithelial cell by contributing to cellular fat production. The development of foot pad lesions was significantly reduced by supplementation of biotin in tests when the litter moisture content was approximately 25%.

   **Acids:** The primary functions of acid supplementation in animal feed or drinking water are preservation and disinfection. The additional effect of a reduction of the pH-value in the stomach supports pepsin activity and therefore results in improved digestion of nutrients. Antimicrobial effects on pathogenic bacteria are further effects of acid supplementation in animal feed. The energetic utilization of organic acids contributes to the animal’s nutritive supply. Acid blends consisting of various organic and inorganic acids synergistically combine to enhance these special positive effects over and above those that can be achieved by using single acid products.

   **Probiotics:** Probiotics are naturally occurring bacteria which ensure a healthy balance of the intestinal microflora when supplemented to the diet. Inhibition of harmful microorganisms, such as *E. coli* or *Salmonella*, and stimulation of the growth of beneficial bacteria help to overcome the everyday stresses of modern production. Results are significant improvements in health status and performance parameters of animals. In close cooperation with specialists in the field the products ToyoCerin, Microbian have been developed to offer the best probiotic effect in various poultry feeds.
Animal health programs

The health of a flock can influence the prevalence of foot pad dermatitis. Reduced bird activity, infections or diarrhoea may directly or indirectly have a negative effect on litter conditions and thus lead to problems with contact dermatitis. Appropriate vaccination can minimize immunosuppression diseases, and consequently the bacterial and humidity load to litter.

Biosecurity and hygiene systems, disinfection and decontamination measures as well as immunization programs with vaccines play an integral part to prevent immunosuppression and consequently avoid poor immune response and increased secondary infections associated with wet droppings or incidences of diarrhoea.

Hygiene and Biosecurity Control on farms: Target-oriented hygiene processes will assist you to minimize the bacterial load on the chicks and maximize the performance of your flock. We conduct a risk-based analysis and optimize your hygiene and biosecurity processes.

Products

AviPro vaccines: Looking at the potential infectious agents, there are many to control: Infectious Bursal Disease Virus, Reo Virus, Haemorrhagic Enteritis Virus of Turkeys, Marek’s Disease Virus, Infectious Bronchitis Virus, Avian Metapneumovirus, Newcastle Disease Virus, Chicken Anaemia Virus, Avian Mycoplasma, Bacteria, Fungi, and some parasites, such as Coccidiosis.

It is important to protect the birds especially against three important immunosuppressive viral diseases: Gumboro, Marek and Chicken anaemia virus. From a diagnostic point of view, it may help the serological diagnostic to detect serum antibodies against these diseases and quantify these in order to decide the best vaccination program. An Optimal Animal Health Management Program will include the protection of the progeny against chicken anaemia virus by administering the oral vaccine to the breeders and also an optimum protection against Gumboro and Marek in broilers.

Drinking water programs

The dripping of drinker lines is the most often cause of wet litter. Regular inside and outside cleaning of drinker lines can help to prevent the development of deposits there and thus maintain the proper closing of nipples. In addition, drinking water is a common source of pathogens and can be a means of transmission of bacterial and viral diseases causing diarrhoea and/or immunosuppression. It shall therefore be hygienic and in good quality. In addition to this, the monitoring of water consumption is a key to preventing the deterioration of litter, and any sudden change should trigger immediate action. Water is also a nutrient which can be adjusted by liquid applications in accordance with immediate flock demands.

Water testing and quality improvement: This complete program is offered by Lohmann in order to optimize water quality.

Training: Optimized water management in farms makes the knowledge of the farmers of the integrations comprehensive and standardized. Farmers will learn how water and water lines on farms shall be assessed for quality, what certain quality results mean to the flock, and accordingly which interventions they ought to implement, how to deliver hygienic water to the flock and operate the water pipeline according to the requirements of the flock.

Products

AviPro Liquids: They contribute to the temporal nutritional needs of the flock which cannot be provided flexibly by feed. Our team assists you in building up a drinking water application program according to the conditions and targets of the flock, taking the vaccinations programs into consideration.

Cuxacid L: This highly-effective, multi-acid blend of formic, lactic, propionic, acetic and citric acid with more than 75 % pure acid has been especially developed for drinking water application during periods of stress for pigs and poultry and to improve animal performance if supplied according to our programme.

The synergistic combination of acids with different ranges of activity effectively controls pathogens, such as E.coli and Salmonella whilst simultaneously increasing the positive microflora in the digestive tract.

Intesoleq Apire: This drinking-line cleaning equipment promotes the water lines in becoming free from biofilm and other deposits without using chemicals.

Test Kits: They ensure a fast water quality assessment.

Ask your Lohmann contact for the price offer of products and services.
Animal Health.
We mean animal health literally:
The good health and the well-being of the animals ensure long-term, top-level performance.
From experience we are the primary point of contact for our customers and partners in industrial livestock production.

Prevention first.
We stand for prevention in animal health: "Prevention first" describes the basic attitude that guides our reasoning and actions and that makes us stand out from our competitors. Both ecologically and economically speaking prevention can dispense with the need for therapy.

Integrated Solutions.
We set standards:
In order to extend our position in the market on a long term basis, we provide solutions for food production that is as ethically responsible as it is efficient and save - in Germany and all over the world.