



Managing URTIs in Australian egg farms

Upper respiratory tract infections (URTIs) have become a major health issue to layer farms in Australia. Costing the egg industry an estimated \$35 million annually through lost egg production, medication and vaccination costs, and bird mortalities.

Signs and symptoms of URTIs

Early detection is essential for reducing spread and egg production losses.

Signs and symptoms of URTIs include:

- ▶ Watery eyes and runny nose
- ▶ Swollen eyelids/face
- ▶ Coughing and/or sneezing
- ▶ Laboured breathing
- ▶ Reduced feed intake

Subclinical infections are common meaning birds may carry pathogens without obvious signs but can still spread disease.

Management practices that increase the risk of URTI

Certain farm practices significantly increase risk of URTI incidence on-farm.

Practices include:

- ▶ Mixed flooring systems (half-slat plus deep litter floors) significantly increase infection risk compared to fully slatted floors.
- ▶ Poorly ventilated and dusty housing aggravates spread and severity of infections.
- ▶ Extended outdoor access (>8 hours daily) showed being a slight factor to increased infection risk.



Control of UTRIs

URTIs are caused by multiple pathogens, making treatment complex.

- ▶ Antibiotics can provide temporary relief but will rarely eradicate infections. Overuse lead to antimicrobial resistance.
- ▶ Vaccination remains an important preventive tool. Current vaccines for *Pasteurella multocida* (fowl cholera) are effective. However, autogenous vaccines may be required for pathogens like *Ornithobacterium rhinotracheale* (ORT) due to strain diversity.
- ▶ Supportive management such as reducing stress, improving ventilation, and controlling dust and litter quality can lower disease impact.

Key stages to monitor for UTRIs in the production cycle

Monitoring data revealed pathogen dynamics across the laying cycle:

- ▶ **Brooding & rearing** (weeks 1–10)
Mycoplasma gallisepticum and *M. synoviae* detected and *Gallibacterium anatis* often emerges.
- ▶ **Pre-lay** (week 16–21)
Ornithobacterium rhinotracheale (ORT) commonly appears, often in co-infection with *Gallibacterium anatis*.
- ▶ **Early lay** (from week 21)
Co-infections increase. Monitoring is critical as production ramps up.
- ▶ **Peak lay** (weeks 32–40)
Highest risk of complex, multi-pathogen infections.
- ▶ **End of lay** (week 70+)
Persistent *Mycoplasma gallisepticum* continues, reflecting early vaccination use.

(See Table 1).

Table 1 : The bacterial pathogens identified from each farm at each sampling time point of the laying cycle of free-range layers.

Pathogen	Week 1 Brooding	Week 10 Rearing	Week 16 Pre-lay	Week 21 Lay	Week 32 Peak lay	Week 70+ End of lay
<i>Pasteurella multocida</i>						
<i>Avibacterium paragallinarum</i>				✱	✱	✱
<i>Ornithobacterium rhinotracheale</i>			✱	✱	✱	✱
<i>Gallibacterium anatis</i>		✱	✱	✱	✱	✱
<i>Mycoplasma synoviae</i>	✱	✱	✱	✱	✱	
<i>Mycoplasma gallisepticum</i>	✱	✱	✱	✱	✱	



Primary pathogens identified in Australia

The research found that 10 main bacterial or viral pathogens were detected in association with UTRIs in Australian free-range layer hens, with most outbreaks involving two or more pathogens. The key pathogens are:

- ▶ *Mycoplasma synoviae*
- ▶ *Mycoplasma gallisepticum*
- ▶ *Avibacterium paragallinarum* (the cause of fowl coryza)
- ▶ *Gallibacterium anatis*
- ▶ *Pasteurella multocida* (cause of fowl cholera)
- ▶ *Ornithobacterium rhinotracheale* (ORT)
- ▶ *Escherichia coli* (avian pathogenic strains)
- ▶ *Bordetella avium*
- ▶ Infectious laryngotracheitis virus (ILT)
- ▶ Infectious bronchitis virus (IBV)

Emerging pathogens such as *Porphyromonas gingivalis* and *Tanerella forsythia*, typically linked to human oral infections which were previously unreported in hens, were also detected in severe outbreaks.

KEY TAKEAWAYS FOR FARMERS

Monitoring data revealed pathogen dynamics across the laying cycle:

- ▶ **URTIs are multifactorial** and therefore multiple management factors should be considered.
- ▶ **Focus on early detection** of clinical signs and implement regular diagnostic testing where problems persist.
- ▶ **Review housing design** and outdoor access practices to reduce exposure.
- ▶ **Targeted vaccination and medication programs**, particularly for pathogens like ORT and fowl coryza.
- ▶ **Continued monitoring** throughout the laying cycle to identify emerging risks.

More information on URTI

Scan the QR code to find out more about the research project.





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