Elanco

HTSi

Insight for healthier business decisions

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HTSi Annual Report 2024

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Insight for healthier business decisions

Contents

Report created from 2023 data

What is HTSi?

Developed to enable poultry businesses to make informed decisions towards future improvements, **Elanco's Health Tracking System (HTSi)**, is an established, independently verified and data-led broiler benchmarking platform.

Globally recognised, HTSi monitors the health and performance of birds, incorporating multiple lesions to assess intestinal health, respiratory stability, locomotor function and bird welfare.[1]

In-person expertise
Farm visits by the knowledgeable HTSi team guarantees ready access to the best expertise and individualised advice

For **Poultry industry leaders** who seek to continuously improve their business, HTSi is a data management platform that enables better understanding of flock health to drive timely, data-based decisions and robust benchmarking, leading to improved performance and profitability

Bespoke Intestinal Integrity (I^2) score system
Offering consistent and easy to compare intestinal health data

Established
Improving poultry production for over 26 years

Proven business benefits
Profitability, bird health and welfare, environmental

All key areas of bird health analysed
Full assessment that recognises the importance of gastrointestinal (GI) health, enabling informed decisions

Unrivalled breadth and depth of data
Providing meaningful benchmarking information, at any level of detail, for accurate predictive modelling

HTSi

Best Practice

HTSi enables producers to monitor the general health of their birds. Establishing trends needs consistency in the HTSi sessions, as well as a selection of birds that represent the company. This means birds from a wide range of ages, and from a variety of farms to ensure that data captured is representative of the whole flock health.

FAQ:

Why do we look at "healthy" birds?

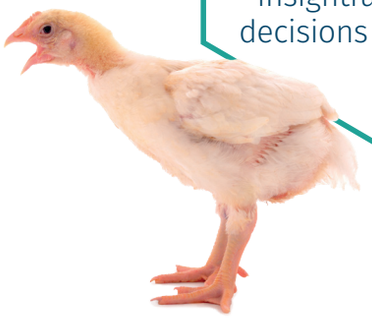
HTSi is not a diagnostic tool, and should be used to assess the health of average birds in a shed. When used continuously, this creates a pool of data that represents the standard birds in a region, or company, which in turn allows us to use predictive modelling to workout what is "normal" for the region or company. HTSi can then identify when any flock of birds are outside of what is expected.

HTSi is:

- A valuable tool to help poultry producers monitor trends, opportunities and focus areas
- A way to identify and overcome challenges at a granular level
- A robust benchmarking system, allowing meaningful conclusions to be drawn and more insightful business decisions to be made

HTSi is not:

- A diagnostic tool
- A replacement for a vet
- A way to investigate health problems



Global Reach

Recognised globally, HTSi is trusted by 350 poultry businesses over 51 countries.

The number of HTSi sessions in the EMEA (Europe, Middle East and Africa) region has steadily increased since 2019. Latin America remained steady, showing a slight decrease in 2023. After a drop in 2021, Asia and Pacific (APAC) region has increased the past two years.

2023
The Top 3 countries for number of birds in HTSi this year:

Brazil

32,311

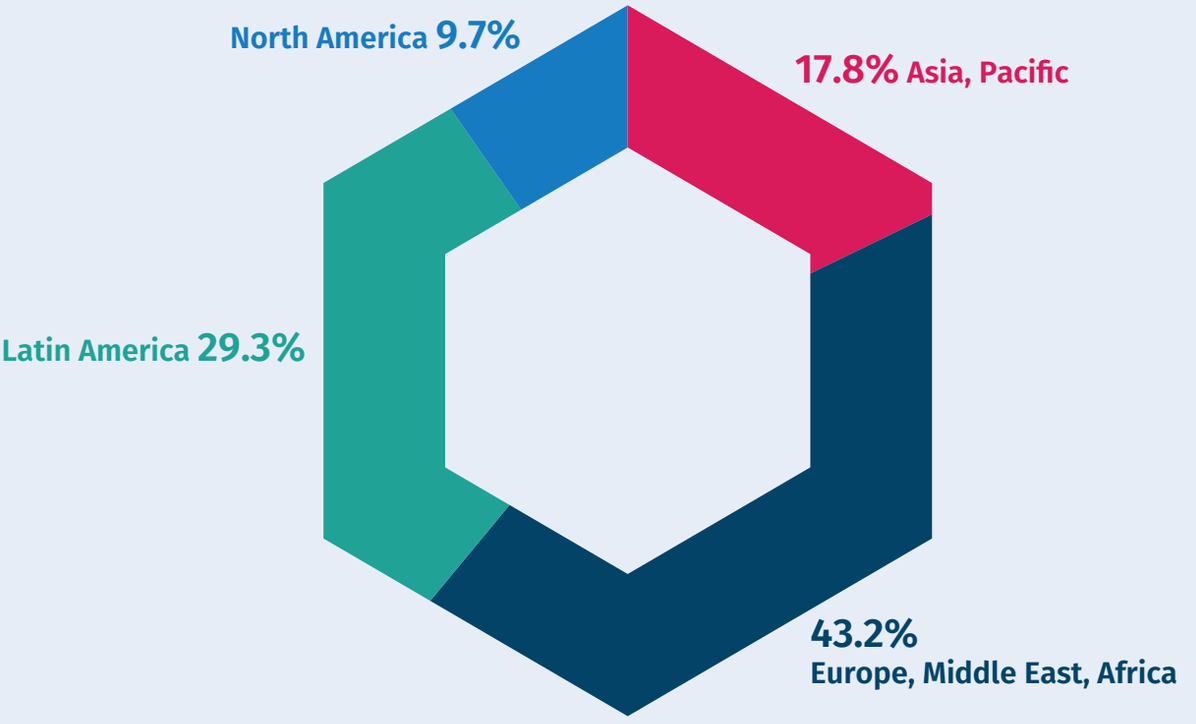
USA

14,054

China

18,637

Number of Birds vs. Region in 2023



2023 in the UK

As part of Elanco's value adding HTSi, the team continued to travel around the UK, collecting meaningful data to provide customers with trusted expertise and information to make better business decisions.

6,017 birds
necropsied

260 farms
702 houses

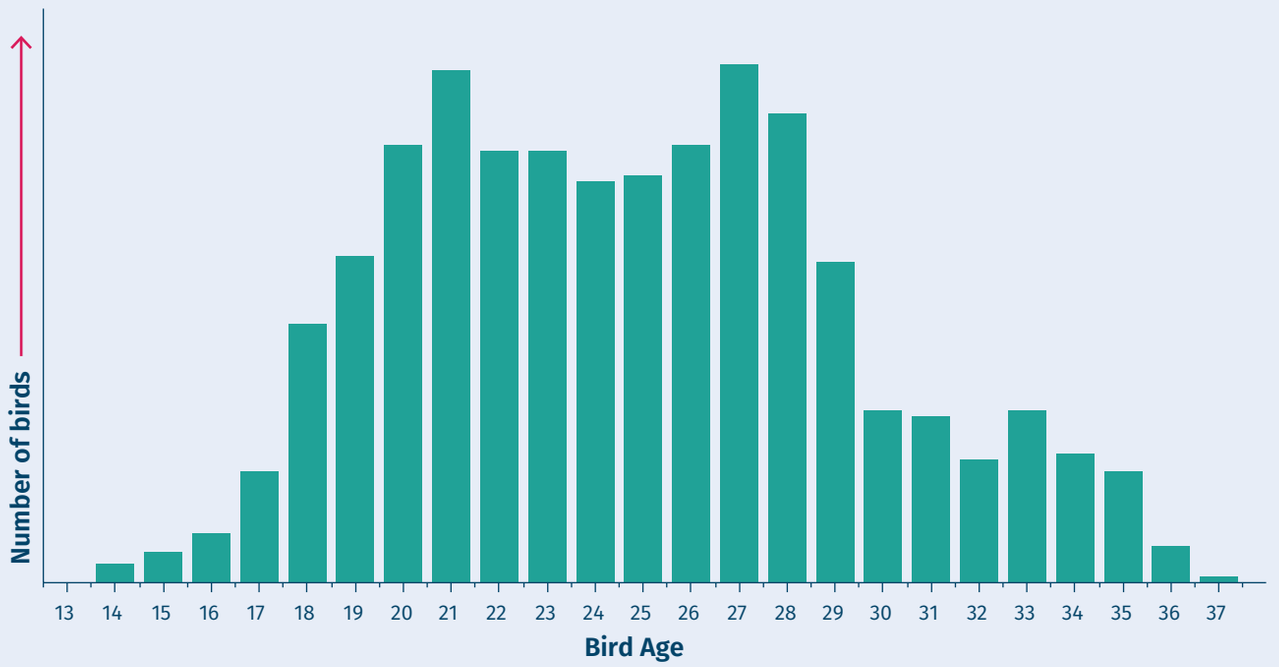
8 broiler companies
covered

90% of the UK market
covered

Postings by age

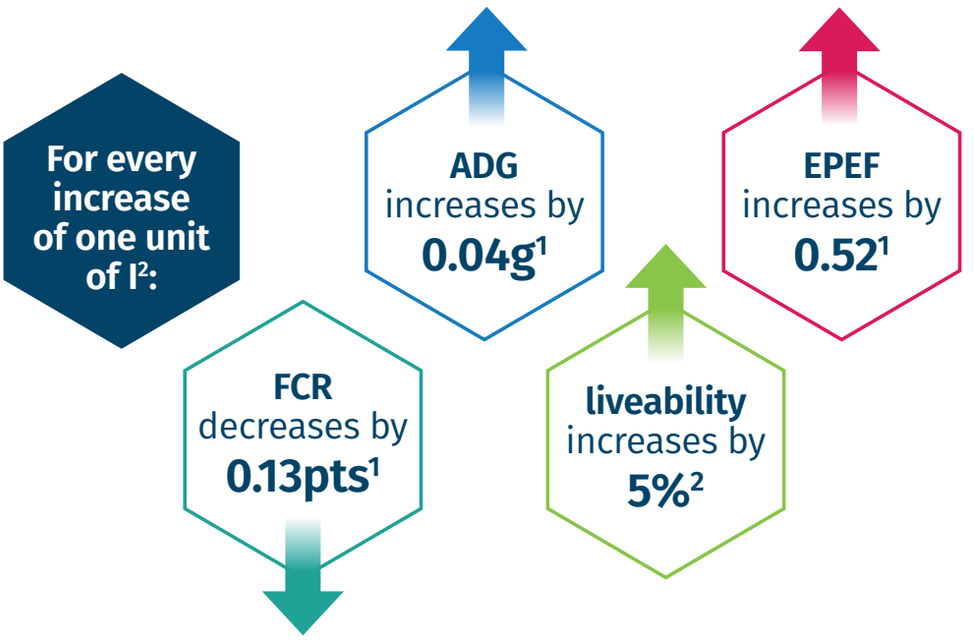
HTSi sessions in 2023 included birds ranging from **14 to 37 days of age**, with an average of 24.7 days. The majority of sessions were held between 19 and 29 days. Our extensive data base ensures a wide range of bird ages can be covered, allowing insights into intestinal health at most ages.

Ross - 95.4% | **Hubbard** - 4.6%



Intestinal Integrity (I^2)

Developed to consistently and reliably assess intestinal health, the Intestinal Integrity (I^2) index has been twice independently validated. It assesses 23 intestinal health lesions via a unique weighted algorithm to give a score out of 100.

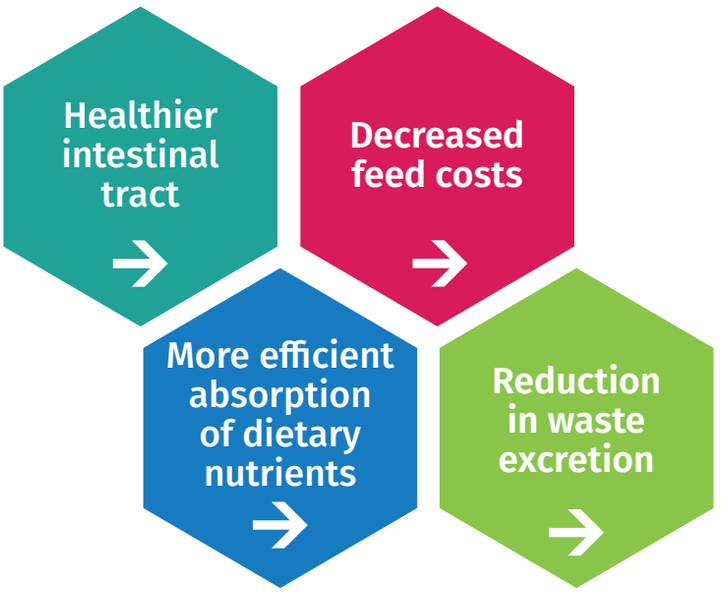


Proven business benefits

At current feed prices[3] a poultry company producing 100 million broilers per year, partnering with Elanco to improve the I^2 index by 5 points could mean an annual income boost of:

£540,540[4]

By understanding the current challenges and seasonal trends, allows proactive intervention to reduce potential losses and identify the opportunities to improve ADG, FCR, EPEF and percentage livability.[1,2]

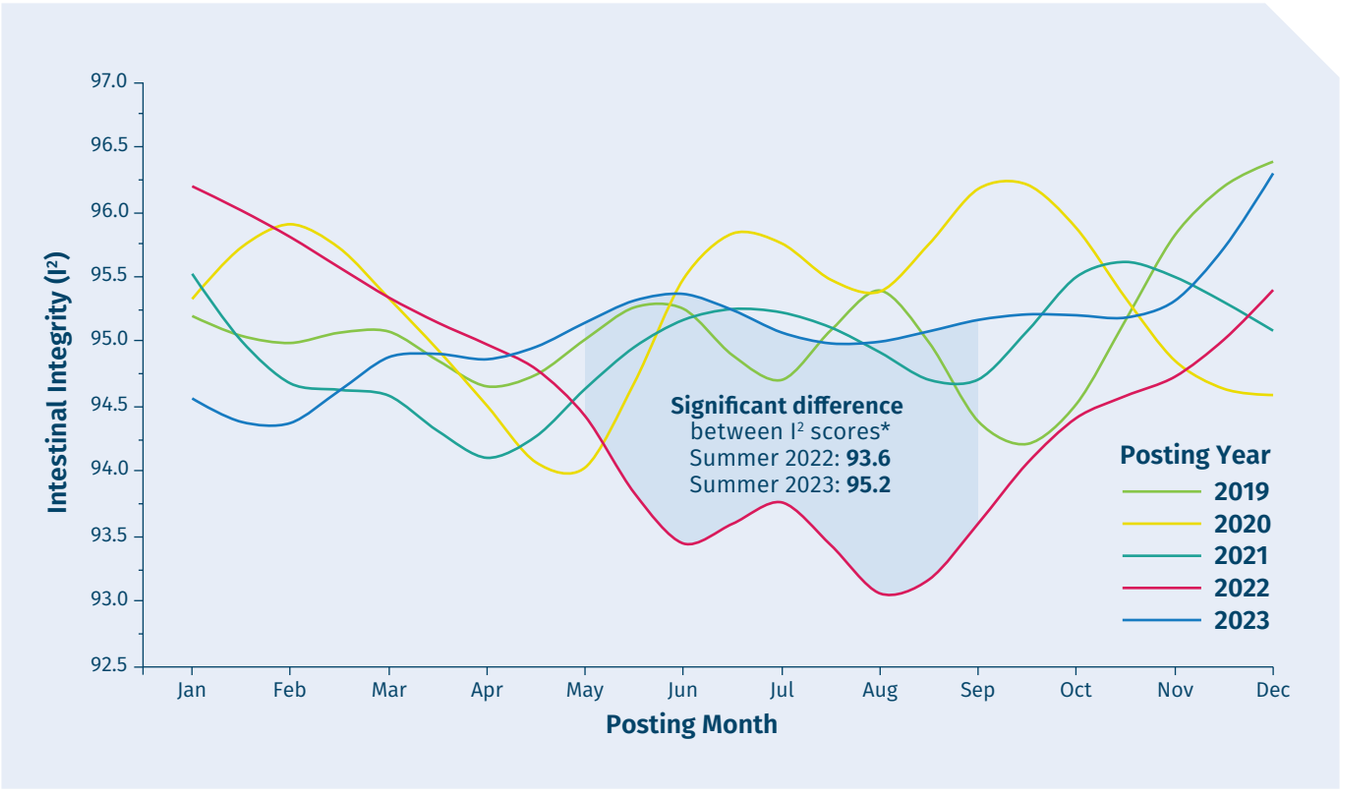


The I^2 index, combined with information contained in the HTSi database, could be used to identify the yield gaps in production and suggest possible interventions to close these gaps.

Alexandra L. Swirski et al., Novometrix Research Inc.

Intestinal Integrity

Trends over time



Over the course of 2023, Intestinal Integrity has steadily improved, with a more stable average across the year, similar to that of 2019 and 2021. This improvement was particularly seen between March and June, and again in November to December, with the year ending on the higher I^2 average seen across the 12 months - 96.3. The only other time the average I^2 score has been higher was in December 2019 at 96.4.

The previous year, 2022, experienced a steady decline in the first quarter of the year, similar to 2020 and 2021. However, where April and May saw the latter years start to improve again, **the same time period in 2022 saw only further decline**, with the worst average I^2 score in the last five years seen in August - 93.0.

I^2 Across Europe

The below diagram shows the average I^2 score in each region in 2023.

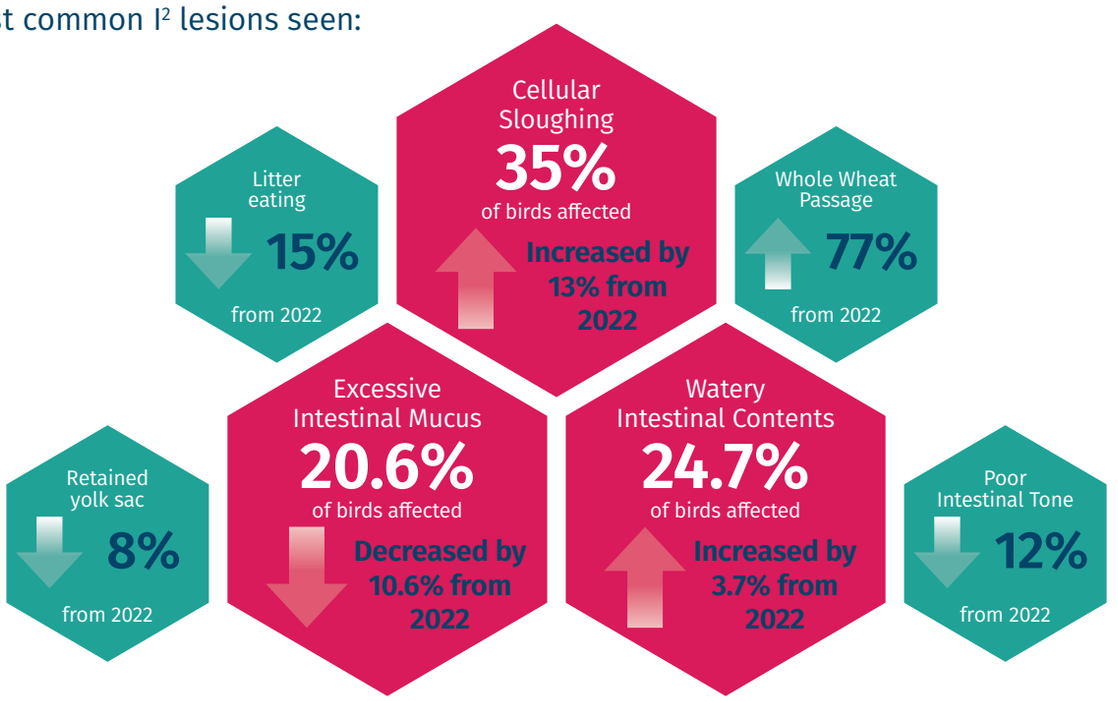
*p=<0.0001

Intestinal Integrity

A total of 23 different lesions sit behind the Intestinal Integrity score. The data below shows the most common lesions, aside from coccidiosis, seen in HTSi sessions in 2023.

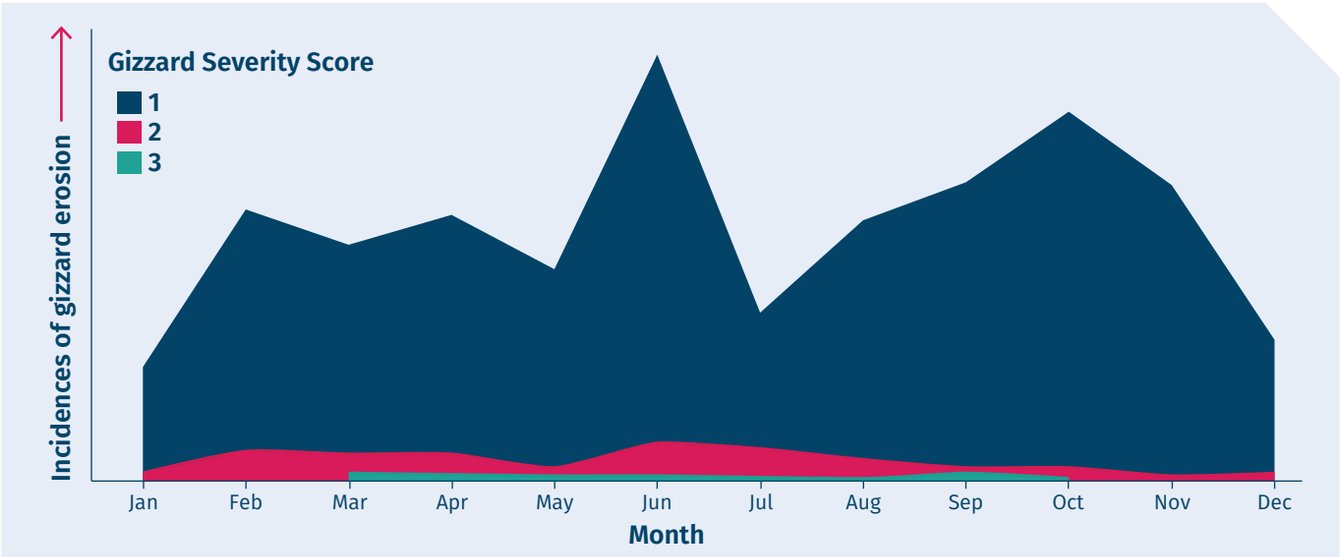
Key contributors

Excessive intestinal mucus, cellular sloughing and watery intestinal content remained the most common I² lesions seen:



Gizzard Health

Incidences of gizzard erosion have increased in 2023, with **26% of birds affected**, an increase from 21% and 22% in 2022 and 20 21, respectively.

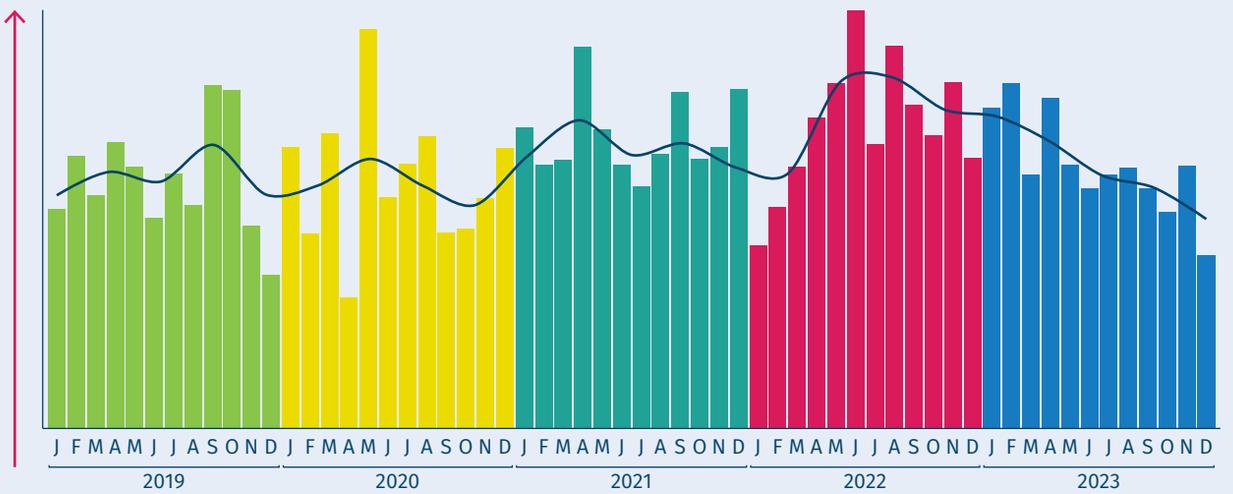


Like previous years, gizzard erosion remained stable until spring, where levels of both mild (score 1) and moderate (score 2) lesions increased. With exception to July, where levels remained elevated throughout the remainder of the year. The age at which gizzard erosion was most noted was 21.5 days of age.

Coccidiosis – *E. acervulina*

A malabsorptive species of coccidiosis, *E. acervulina* is characterised by white scars on the inside of the intestine, commonly in the duodenal loop. In 2023, **36.5% of birds were affected** by this species, a 9% reduction from 2022 levels.

E. acervulina trends



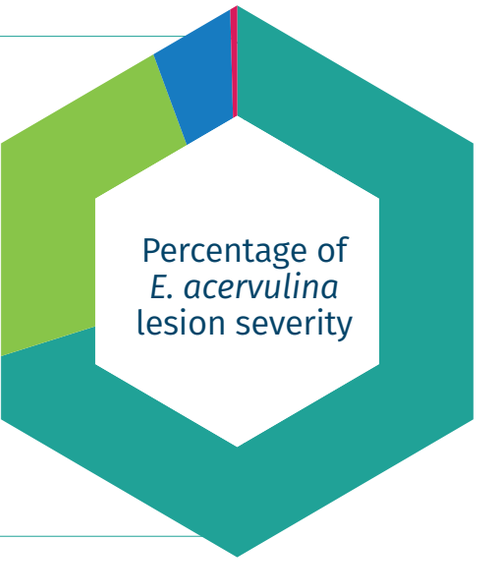
The start of 2023 experienced an elevated level of *E. acervulina*, with the effects of the previous year's peak in June still apparent. Levels have decreased over 2023, with the **average seen in December 2023 the lowest since April 2020**, where restricted visitors on farm due to the COVID-19 pandemic had the secondary effect of high level biosecurity on farm.

Of the **2,197 birds** showing *E. acervulina* lesions;

70.3%
were mild (score 1)

24.3%
were moderate (score 2)

5.5%
were severe (scores 3/4)

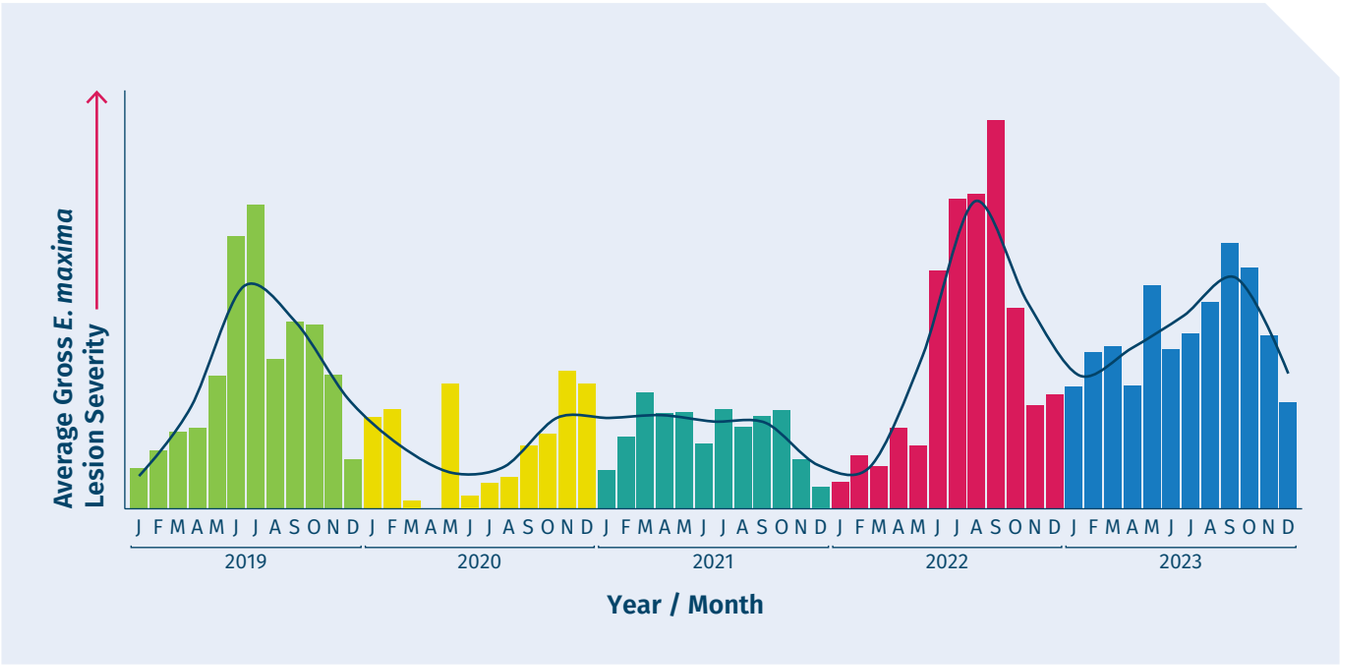


As well as incidence, severity of lesions have also reduced with lower percentages of moderate and severe lesions compared to 2022.

Coccidiosis – *E. maxima*

The most detrimental coccidia species to a farm's performance and profits, *E. maxima* damage causes red petechiae on the outside of the intestinal tract. In 2023, **10.6% of birds** were seen to have gross lesions, confirmed with microscopy. This is an **increase from 9.7% from last year**, showing the huge increase of *E. maxima* incidences has not yet returned to 2021 levels.

E. maxima trends



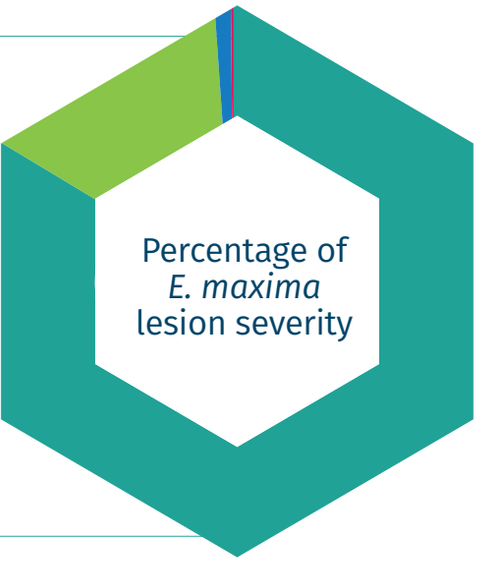
Whilst decreasing, levels of *E. maxima* seen in birds presented throughout 2023 haven't reached the low levels seen across industry in 2020 and 2021.

Of the **635 birds** showing *E. maxima* lesions;

83.6%
were mild (score 1)

15.3%
were moderate (score 2)

1.1%
were severe (scores 3/4)

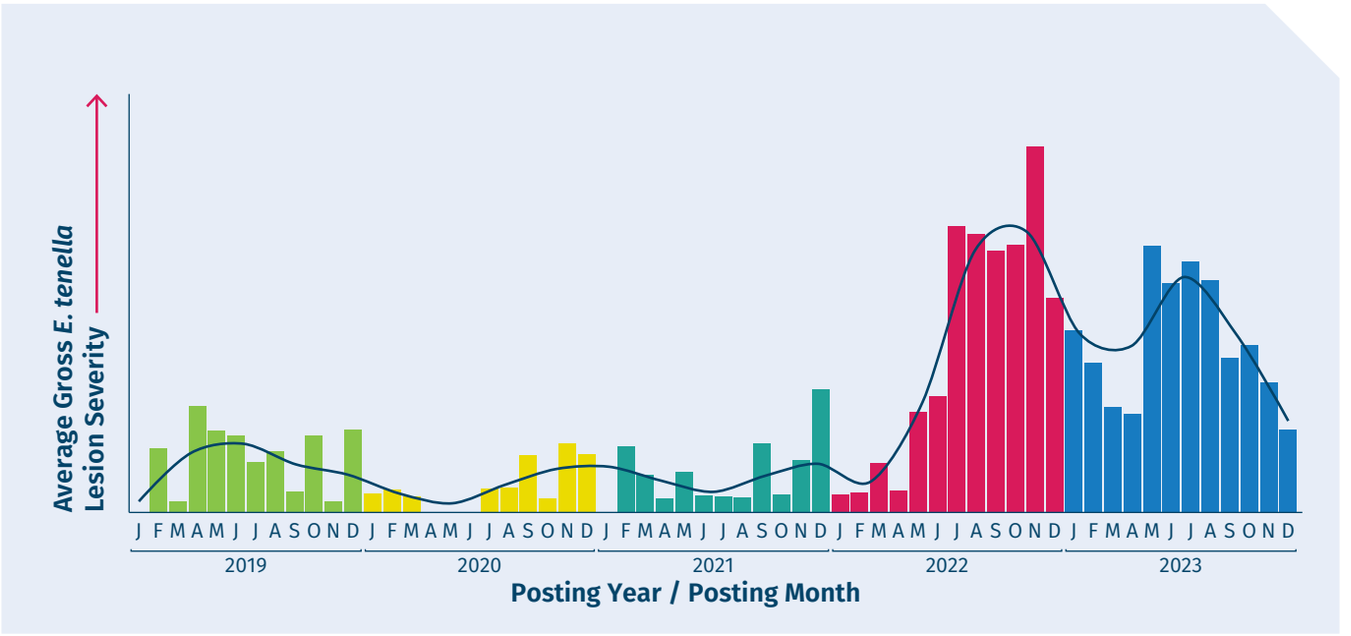


The levels of mild (score 1) lesions has reduced slightly from 2022, with more moderate and severe cases seen.

Coccidiosis – *E. tenella*

Whilst clinical cases on farm are not often seen as part of HTSi surveillance, **10.6% birds in 2023** presented with gross *E. tenella* lesions, over double from 4% in 2022. This is the only common coccidia species that will cause mortality in the birds.

E. tenella trends



In 2023, the levels of *E. tenella* recorded were still elevated beyond what has been since in 2021 and previous. A sharp increase from May, levels continued to rise until July, where they remained consistent over the summer and autumn months. May saw the highest levels, before a reduction in autumn.

Of the **280 birds** showing *E. tenella* lesions;

91.4%
were mild (score 1)

7.5%
were moderate (score 2)

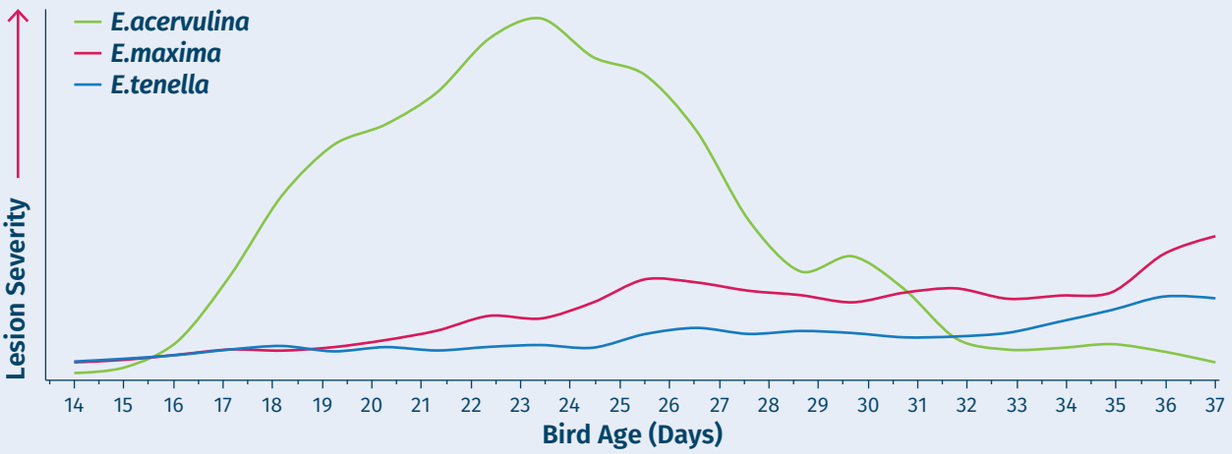
1.1%
were severe (scores 3)

No scores of **4** were seen.

Whilst severe and mild cases reduced from the previous year, more moderate cases were seen this year.

Coccidiosis peaks

2023 Coccidiosis peaks by species



Data collected over 2023, shows ***E. acervulina*** peaking at 23 days of age, a day earlier than what was seen in 2022. A smaller secondary peak can be noted at 30 days.

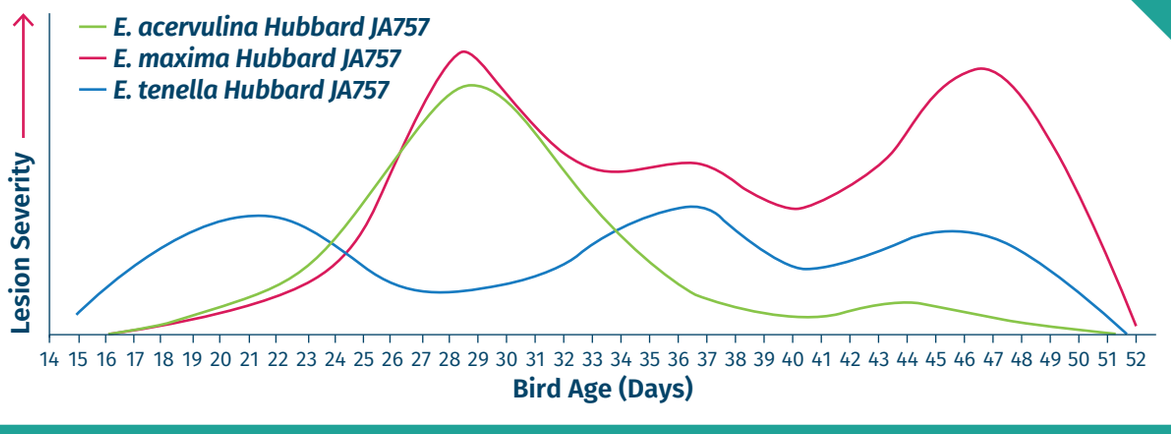
Like 2022, ***E. maxima*** can be seen from the early 20's onwards, although most challenges are noted at 36 days of age.

Incidences of ***E. tenella*** can be seen in low levels from 26 days, however the average amount seen in much lower than ***E. maxima***, which differs from 2022 where levels of ***E. tenella*** were higher than ***E. maxima*** throughout the birds' life.

CASE STUDY

2023 Coccidiosis Peaks Hubbard Birds – Benelux Case Study

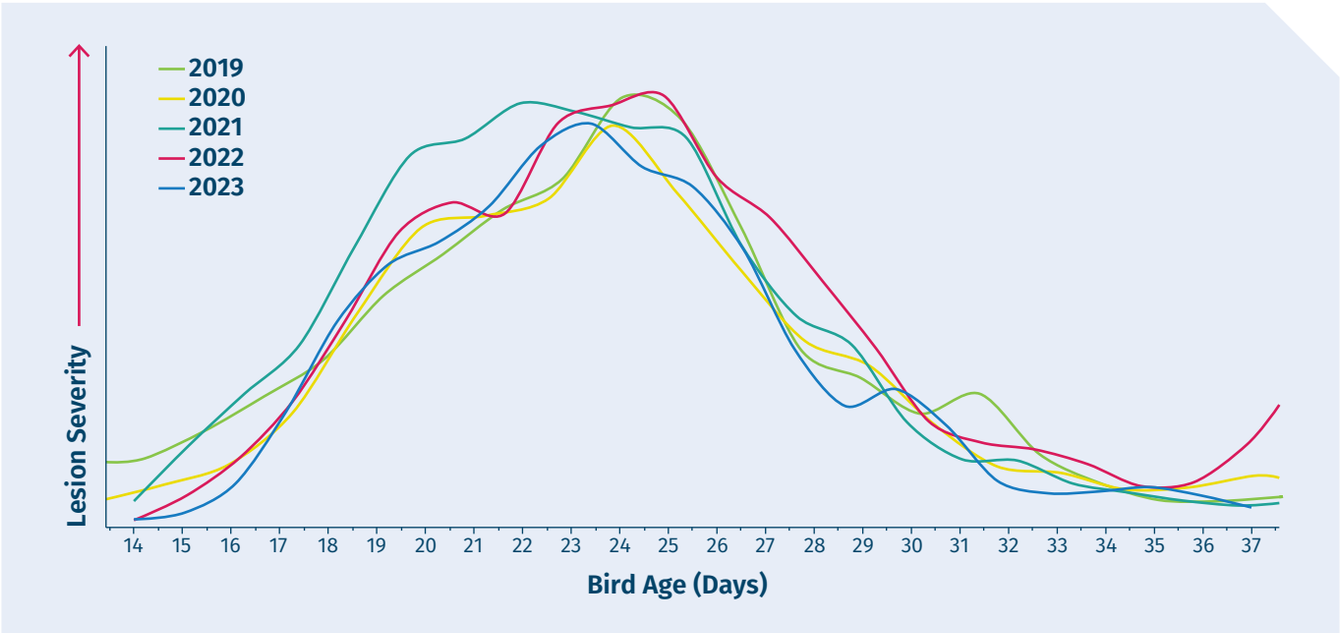
With the increase in use of slower-growing breeds in the uk, we have included this case study from the Benelux region to showcase the coccidiosis peaks in the hubbard breads. A point to note here is that the current anticoccidial program in this region is blank feed from 39 days onwards, this is likely to be why we are seeing the secondary peak from there onwards. This data set totals over 500 birds so is a representative sample.



Coccidiosis peaks by year

The following graphs show how the peaks of coccidiosis has moved, if at all, year on year.

E. acervulina vs bird age



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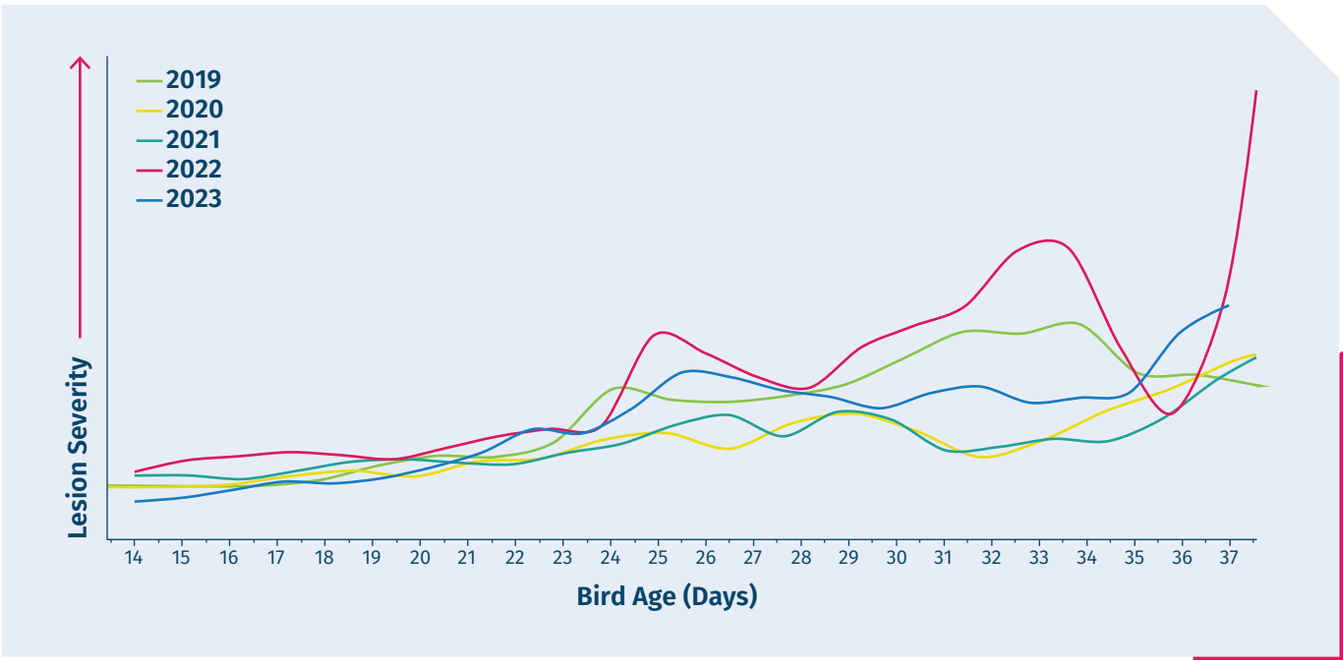
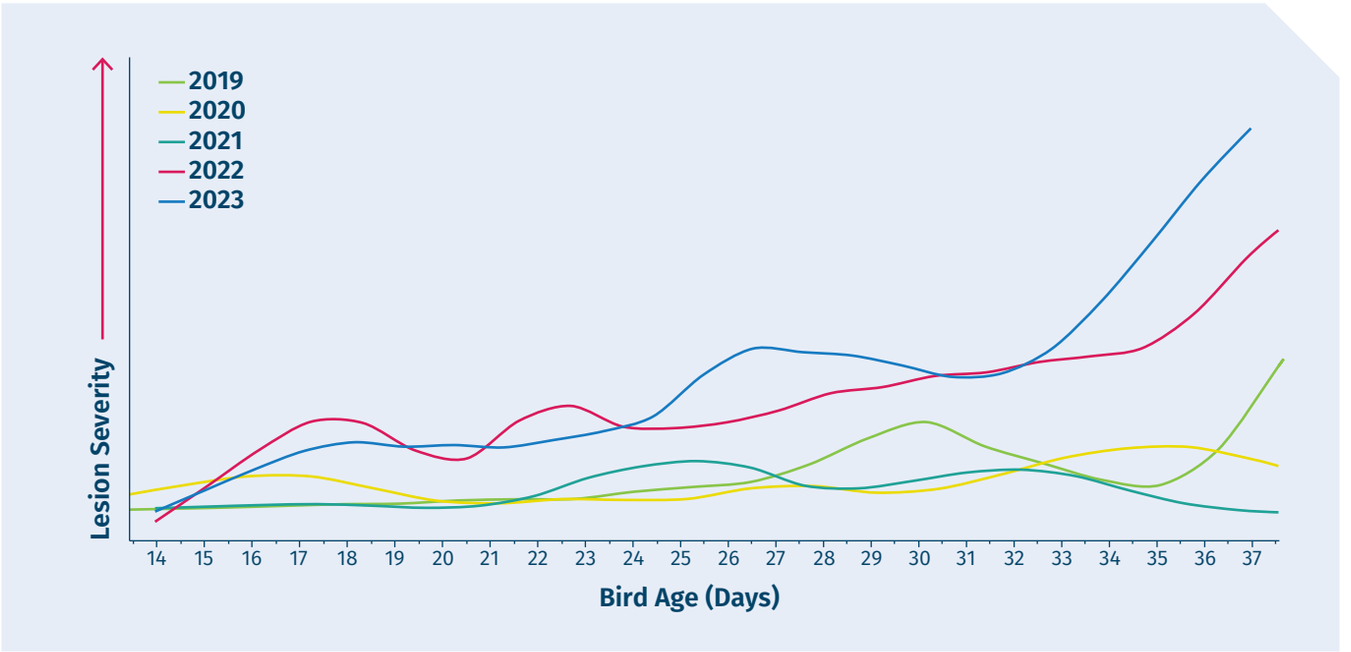
E. maxima vs bird age



Coccidiosis peaks by year

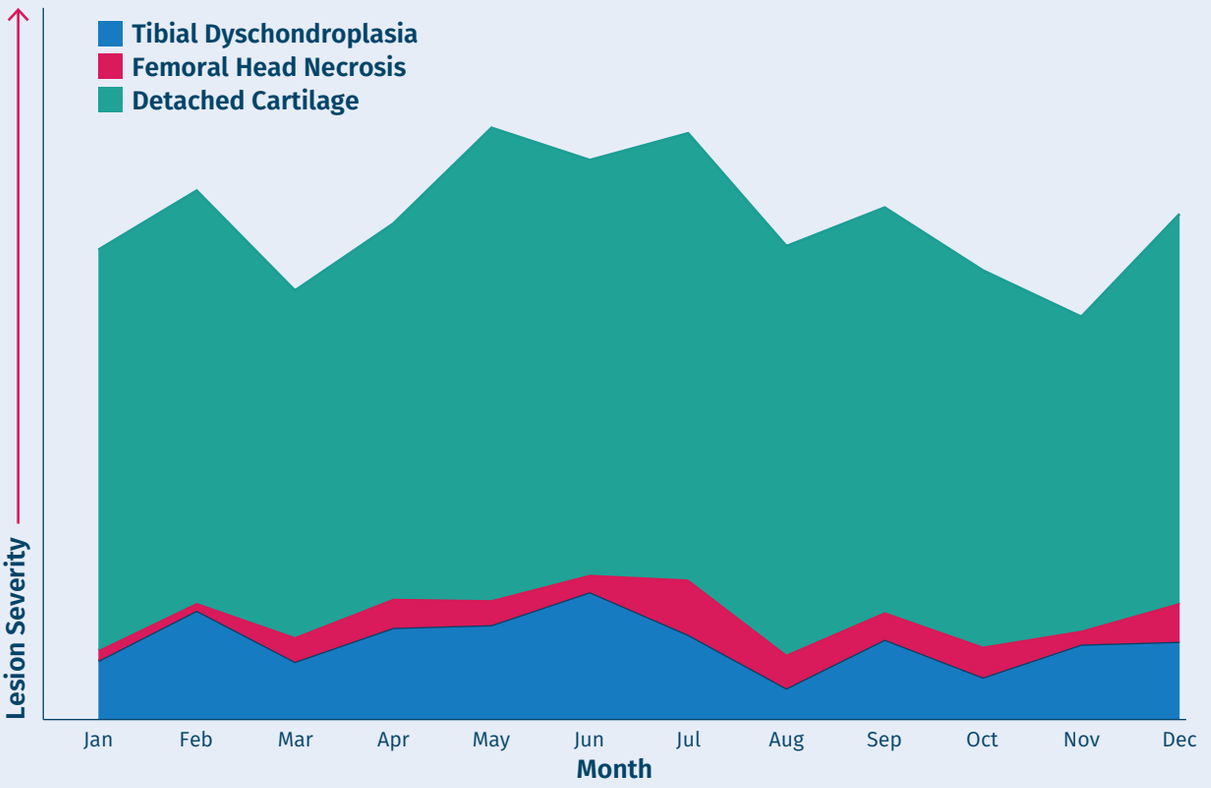
E. tenella vs bird age



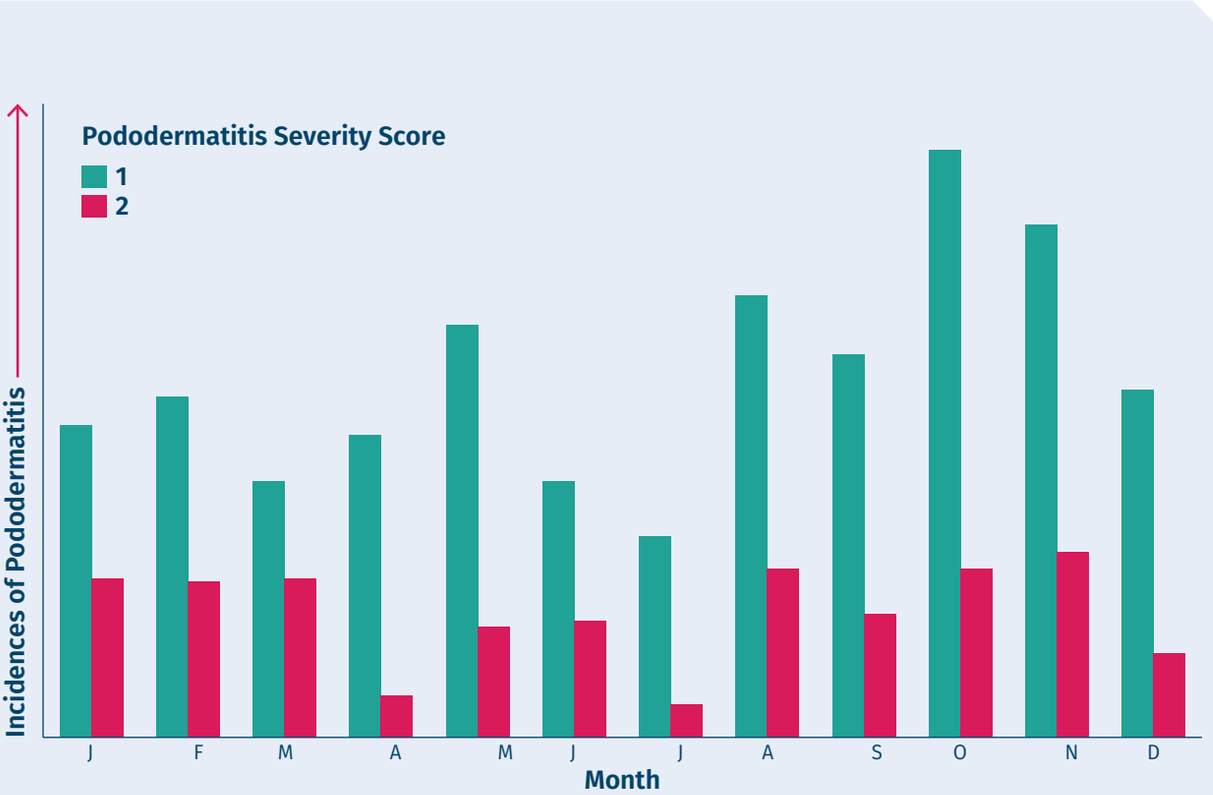
When considering the average *E. tenella* score over the bird's life, 2023 data shows a definite peak towards the late thirties, similar to 2022 and 2019, whereas 2020 and 2021 cases didn't show prevalence at any specific age in the bird's life. This peak in later life is where you would expect to see this species of *E. tenella*, if at all, due to the longer life cycle than both *E. acervulina* and *E. maxima*. Birds at 26 and 27 days were also seen to experience *E. tenella* cases more than previous years.

Locomotor Health

Leg Health Over Time



Pododermatitis



Ionophores and sustainability

Used since the 1970's, ionophores are still an effective and efficient tool to improve Intestinal Integrity, and evidence of resistance to these compounds is virtually non-existent. Ionophores are unique as they are animal-only antimicrobials that are not used in human medicine and are unrelated to and do not contribute to shared-class antibiotic resistance.[18]

Social

Effective coccidiosis management results in:

- **Reduction in secondary diseases including necrotic enteritis due to overgrowth of *Clostridium Perfringens*[7]**
- **Better bird welfare; less breast blister and dry litter[8]**
- **Less zoonotic diseases[7,9]**
- **A reduction in antibiotic usage[8,9]**

Economic

Poor coccidiosis control has a negative economic impact, due to **increases** in:

- **FCR**
- **Feed costs**
- **Mortality**
- **Days to slaughter**

It also prevents more birds being placed per square metre[5,6]

Environmental

Good coccidiosis management saves up to:

- **6% feed**
- **6% water**
- **6% space**

At EU levels, this the equivalent to the carbon footprint of 14 cars/year[10]

The impact of poor coccidiosis control costs approximately **£10.5 BILLION** per annum worldwide

Good coccidiosis management can reduce antibiotic usage by up to **5x**[8,9]

Coccidiosis impact:[6] **-£0.16 (US$0.20)** per chicken produced

Why effective coccidiosis control is key for a sustainable poultry production?

Animal

Better Welfare
Dryer litter leads to less breast blisters, hock burns and footpad lesions[9,11]

Less Bacterial and Necrotic Enterites (*C. perfringens*)[12]

Better performance[13]

Planet

Less use of land[14]

Less use of water[14]

Decrease carbon emission[14]

People

Less use of antibiotic important to human health[10]

Food Safety

Less zoonotic diseases (*Salmonella and Campylobacter*)[15,16,17]

More affordable high-quality protein[9]

Hemicell™ XT

β-mannans

Beta-mannans are anti-nutritional factors (ANFs) in the diet and indigestible for monogastric animals

Found in most vegetable feed ingredients

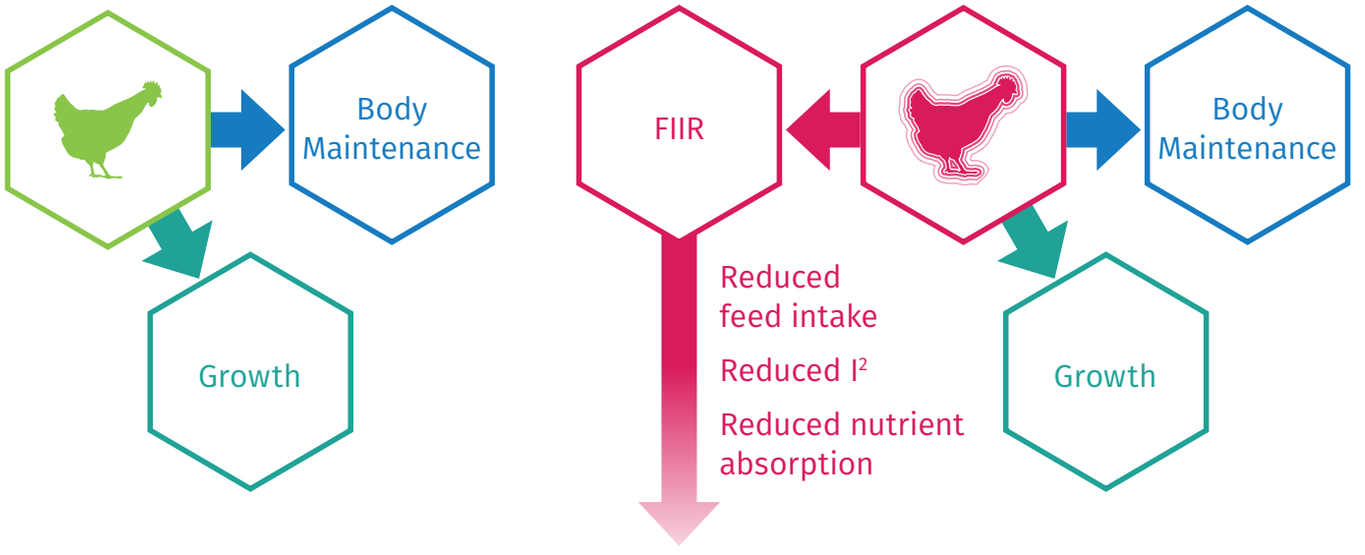
Soluble so easily distributed throughout the GI tract

Not affected by feed processing

As similar mannose structures are found in cell surfaces of many pathogens, animals mistake β-mannans as a pathogen and initiate a wasteful immune response - FIIR

A **healthy animal** will utilise the energy gained from the feed for body maintenance or growth.

An **animal experiencing stress**, much like the conditions in the average broiler shed, will divert some of the energy to the FIIR, with detrimental effects on feed intake.



The I^2 index is a pivotal part of HTSi – a unique, independently validated composite scoring system that provides a comprehensive assessment of Intestinal Integrity in broilers. It allows easy comparison between birds of different ages, breeds, seasons and years.

Recent meta-analysis on global HTSi data has revealed the extent of the impact of FIIR on the I^2 index, producing a **FIIR FACTOR OUT OF 100**

Veterinary comments

From James Bishop BVM BVS MRCVS – Poultry Technical Consultant, Elanco.

Having seen unprecedented levels of coccidiosis and a significant reduction in Intestinal Integrity in 2022, likely due to instability in coccidial population control through changing anticoccidial programs, it is positive to see that overall I^2 in 2023 for the UK has started to regain stability.

The areas most responsible for this shift have been the lower levels of *E. acervulina* and *E. maxima* throughout 2023, particularly during the summer months. This improvement has been achieved despite the incredibly wet summer seen throughout 2023 and the high variation in daytime/night-time temperatures, making it very challenging for producers to manage ventilation and keep litter dry.

These weather variations often lead to wetter litter which can in turn increase rates of sporulation of coccidial oocysts in the litter. Given that overall coccidial lesions have fallen in 2023, it shows that stability is returning but the risk remains high for producers that coccidial levels could increase if further changes in anticoccidial programmes are made.

The year of 2023 has seen lots of fluctuations in levels of gizzard erosions where levels were highest through autumn. Gizzard erosions lead to poor uniformity through the flock, runting is often seen and performance can be dramatically affected due to a reduction in the bird's ability to breakdown feed and absorb the energy effectively.

Seeing gizzard erosions at this time causes further concerns as new raw materials enter the diet and can potentiate further changes to Intestinal Integrity with higher levels of mucous, watery contents and hyperaemia all linked; subsequently lowering I^2 and impacting performance.

The most effective way to reduce coccidial oocysts within a shed is by drying the oocysts out leading to death and reduction of burden within sheds. It is important that producers utilise turnaround times wisely to maximise floor drying time before bedding up for the next crop.

With the uncertainty of weather changes in the UK and the impact this can have on production, it is important to focus on all areas of the shed such as roofs, walls and water pipes to prevent water ingress which can further amplify wet litter.

Moving through 2024 and onwards it is vital that producers maintain stable and continuous coccidiosis control to ensure the best possible performance and welfare outcomes.

Elanco HTSi

Insight for healthier business decisions

For further information or queries on anything in the Elanco Annual Report, please contact the Elanco team on the following email address:

poultry@elancoah.com

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