WYNNSTAY HUMPHREY
FEEDS & PULLETS

Why gut health matters

Advancing Poultry Performance

Why gut health matters

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1. Introduction

The lifelong importance of gut health

The health, welfare and performance of your flock depend to a large extent on the millions of tiny organisms populating their gastrointestinal tract, or gut.

A healthy gut allows the bird to absorb the maximum nutrition from feed and boosts its immune system. But if gut health is compromised, the ability to convert food to eggs will decline and the bird will be susceptible to disease, leading to financial loss.

A good balance of the right gut bacteria at each stage of their development will give your birds the best chance of health. The aim of this ebook is to help you manage your flock's microbiome and the steps you can take to overcome challenges to gut health. We hope you find it useful.

Martin Humphrey
Wynnstay Humphrey Feeds & Pullets

WYNNSTAY HUMPHREY FEEDS & PULLETS

"I would like to thank you for your assistance over the past year, and in particular your attention to detail giving me a first class flock."

— Mark Saunders, East Combe Farm.

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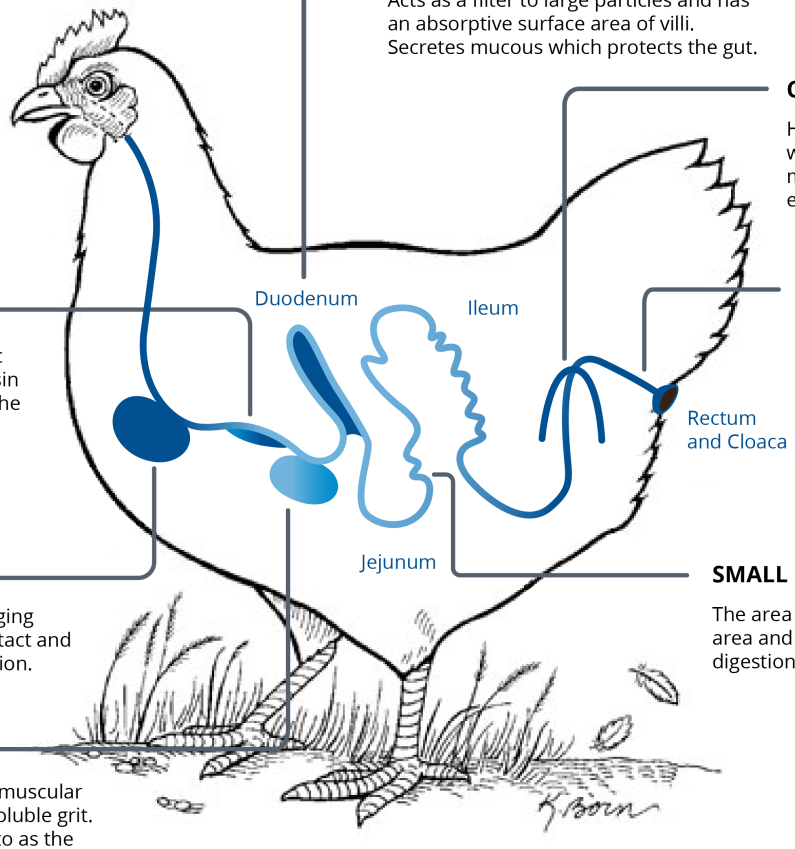
2. The Gastrointestinal Tract



DUODENUM

Acts as a filter to large particles and has an absorptive surface area of villi. Secretes mucous which protects the gut.

CAECA

Hold a large bacterial community which breaks down indigestible plant material by fermentation. Evacuated every 24-48 hours.

COLON

An area of minimal absorption/digestion. On leaving the colon the faecal pellet passes into the cloaca where it is mixed with uric acid and ejected via the vent.

PROVENTRICULUS

The stomach, where gastric secretions of acid and pepsin reduce the pH and soften the food.

CROP

This is a muscular pouch for foraging hens. The feed enters the crop intact and goes through bacterial fermentation.

SMALL INTESTINE

The area of highest villi and microvilli surface area and therefore the site of maximum digestion and nutrient absorption.

GIZZARD

Here the feed is ground with muscular action and with the aid of insoluble grit. The gizzard is often referred to as the 'hens teeth'.

3. Bacterial transfer in nature

Developing the microbiome

When a clutch of eggs hatches the chicks will be naturally exposed to the mother hen's excreta on the shell and around the nest. Her unique microbiota will quickly colonise the gastrointestinal tract, initiating the development of its microbiome with hundreds of species needed to protect the gut, aid digestion and feed good bacteria.

In the hatchery environment, and in the rearing shed, this natural seeding of the gut does not occur, so brooding conditions must support optimal gut microbiota development.

Early access to clean water and appropriate nutrition are essential, and the addition of a supplements such as Actigen, a natural product from Alltech, can promote microbiome diversity and aid the healthy development of the gut.

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4. Gut Development

Optimising digestion and egg production

The gut fuels and protects the hen. From the moment a chick hatches, its gut develops rapidly, developing a profusion of tiny finger-like structures called villi that protrude inwards from the lining of the small intestine.

Villi provide a large surface area, allowing the bird to effectively absorb nutrients from digested feed rapidly before it is expelled.

If these villi fail to develop properly, or are damaged, they will not work efficiently, which can:

- Prevent a bird optimising the nutrients in their feed
- Adversely affect digestion
- Negatively impact the bird's development and egg production capabilities

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4. Gut Development (cont.)

Optimising digestion and egg production

Beneficial microbes in the gut help villi performance, forming a protective mucous layer which acts as a barrier preventing pathogens such as e-coli from entering the digestive system.

Diet is key to good gut development. During rearing Wynnstay Humphrey Feeds & Pullets uses three different starter diets, followed by a grower and a developer diet; all formulated to meet pullet requirements at specific times to optimise development and growth.

"It is important to ensure flocks are brooded carefully to grow a healthy gut, using best management practices alongside the appropriate ration. We are very focussed on early gut development to rear a pullet which is capable of meeting its genetic targets."

- Richard Jones, Commercial Manager Pullets

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"It is crucial to give a commercial flock the best possible start – ensuring productive hens that are happy, healthy and ready for the challenges ahead.."

— Richard Jones, Commercial Manager Pullets

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5. Nurturing a healthy biome

Populating the gut with beneficial bacteria

Like humans, birds host vast numbers of bacteria in their gut. A diverse range of good bacteria is essential to curtail gut disorders. This can be encouraged using dietary supplements:

Probiotics (from the Greek 'for life') are live organisms that help populate the gut with beneficial bacteria, improving feed intake and digestion whilst supporting the bird's immune system.

Prebiotics are non-digestible feed elements that benefit the host by supplying nutrients to beneficial microbes, and contribute to a gut environment hostile to foodborne pathogens.

Competitive Exclusion - In a healthy bird normal intestinal bacteria colonise the gut and prevent harmful pathogenic bacteria from establishing. Commercial products such as Aviguard were developed to help birds resist such pathogens by crowding them out with good bacteria.

6. Gut health on transfer to the laying farm

Minimising stress is essential

Correct management of the pullet, before, during and after transfer from rear to lay is critical to the health and capability of your flock.

Stress can depress the immune system, cause birds to lose feather cover, and later degrade egg production and quality – stressed birds fail to thrive and may suffer lasting damage.

Minimising stress from any source is therefore essential. Wynnstay Humphrey Feeds & Pullets poultry specialist team provide hands-on help and advice on transfer so that the laying house is ready and any change is as smooth as possible.

Hygiene, water cleanliness and lighting are as important to keeping the gut healthy as the correct nutrition.

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7. Gut health for laying flocks

The right diet for health and productivity

Ensuring that birds receive the right feed for their age and development is crucial to maintaining optimal gut health, since dietary changes will have an impact on the gut microbiome.

As pullets mature, their nutritional demands change from growth to egg production.

A healthy egg shell requires around 4g of calcium carbonate a day, which must be provided in the right ratio with other nutrients such as phosphates and vitamin D3.

Wynnstay Humphrey Feeds & Pullets makes over 400 different diets, allowing producers to plan gradual changes to the birds' diet and grist presentation to support gut health and optimise overall flock health and productivity.

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8. How to spot gut problems

Paying careful attention to droppings

Paying careful attention to droppings can give you an early warning of any imbalance in the gut biome, which can then be compensated for by tweaking feed alongside treatment.

The picture opposite shows a ‘regular and normal’ dropping from an adult laying hen.

The dark portion are the by-products from digestion and the white portion are urates (similar to urine).

The bird, when in good health, will produce 5-7 of these per day. In appearance they are slightly shiny, rather than dry.

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8. How to spot gut problems (cont.)

Caecal droppings

Every day it is normal for a laying hen to pass 1-2 of these coloured and loose caecal droppings. These originate from the caeca, where a portion of the digested feed ends up. It goes through another process, similar to fermentation, so further nutrients can be broken down by bacteria, before the by-product is passed as faeces.

These droppings are normal with many shades of dark brown, through to yellowish orange. Colour will depend on the health of the birds gut and caeca, the feed being fed, water quality, and if the birds are ingesting harmful bacteria. The Heterakis worm also lives in the caeca and so does one species of coccidiosis which is found in growing rather than adult birds.

If these are particularly runny, reddish black, or very frothy or bright yellow, then observe the situation and alert your vet if you have continued concerns.

8. How to spot gut problems

Wet droppings

The picture to the right shows faeces which are wetter and have a small amount of undigested feed. In a population, a few of these are not a problem, but if they increase in number or become more loose and watery, then monitor the water and feed intake.

Wet droppings indicate that the gut is working faster as there is potentially a gut upset; it has been passed too quickly before all the nutrients have been extracted by the bird.

Discussing with your poultry specialist that you are on the correct diet, testing the water from an in line sample for bacterial counts, and managing the drainage on the range are the first actions to be taken to promote the return to optimal droppings.

If the situation continues and you are concerned please consult your vet.

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9. How to maintain good gut health

Preventative management

Any loss of function in the gut can have a dramatic impact on the flock.

Pathogens may be carried asymptomatically in the gut and transferred widely before producers are able to take corrective measures, so preventive good management is essential.

Clean Water

Bacteria can flourish in the water system and this is a common cause of gut upsets.

Water systems should be cleaned and sanitised regularly to avoid the transmission of pathogens.

Bin Hygiene

Feed bins can harbour pathogens and should be cleaned thoroughly between flocks. Hygiene bombs such as Fumagri are quick and effective.

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9. How to maintain good gut health (cont.)

Good Range Management

Drainage, regular paddock rotation, keeping grass topped and having areas for birds to dust bath are all important to the health and welfare of the flock. Puddles and muddy areas harbour pathogens which can disrupt the gut.

Additives

Our feeds are formulated as complete diets, but at times your flock may have additional requirements such as extra calcium or fibre, or products to address a site-specific issue (distinct from prescribed wormer and treatments). Speak to your Poultry Specialist for advice on additives for gut health in your flock.

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8. In summary

The fight for good gut health

Bacteria can be powerful friends, or enemies, in the fight for good gut health. It is clear that paying close attention to management practices alongside droppings and nutrition will impact on flock performance and returns.

Gut health is key to optimising performance at all stages of the birds' life.

Our team of Poultry Specialists are always happy to advise and support producers, sharing our expertise for your benefit.

If you would like any further information on any of the issues raised in this ebook or any aspect of free range layer production please do get in touch by calling 01962 764 555 or 01691 828512, emailing enquiries@feedsandpullets.co.uk or contacting your local poultry feed specialist.

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