

Pig HealthCheck Dashboards

— what you see?

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Pig HealthCheck (PHC) is an Animal Health Ireland (AHI)-led programme co-funded by pig producers and DAFM, with the aim of improving the profitability and sustainability of the Irish pig industry through improved animal health and welfare.

PROGRAMME ACTIVITIES

The programme is composed of five elements:

- biosecurity;
- animal welfare;
- animal health;
- Salmonella;
- antimicrobial usage.

By bringing together these five key areas at farm level, the PHC programme will provide valuable information to the farmer, and their veterinary practitioner and advisors which can be used to identify areas requiring improvement and to guide agreement on targeted interventions. Ultimately, coupled with benchmarking, this will help farmers to improve their production performance.

To achieve this, a database has been created that allows all data captured from the five key areas described above to be linked and analysed. A series of dashboards for each component of the programme that display the farm data and benchmark them against the performances of other herds and national averages has been developed. These are displayed in the PHC web application, which was launched on November 15, 2021, and is accessible at <https://www.pighealthcheck.ie> or through the AHI website. This system has been developed for Animal Health Ireland by the Irish Cattle Breeding Federation (ICBF).

Access for each individual farmer is password-protected. Individual farm data is also accessible to each herd's nominated attending veterinary practitioner. The nomination is done by the farmer by completing the Pig Herd Update Form, which is available at: <https://www.gov.ie/en/service/fc1b6-register-as-a-pig-herd-owner> (Option 4). Some of the responsibilities of the attending vet include the delivery of TASAH-funded activities (biosecurity assessment, tail-biting risk assessment and Salmonella TASAH) and they are able to input these assessments directly into the PHC database. While larger herds are likely to nominate specialist pig vets, it is likely that general practitioners will be also nominated for some herds, and it is important that they are aware of the responsibilities associated with accepting such a nomination.

The AHI website has three videos and guides for farmers on how to access their data (<https://animalhealthireland.ie/programmes/pig-healthcheck/pig-healthcheck-database/>)

and another three guides and videos for PVPs (available in the AHI portal) on how to complete the TASAH activities in the PHC database.

BIOSECURITY

Good biosecurity is essential to keep disease out of herds and with the current situation with African Swine Fever in Europe there is a renewed focus on biosecurity. The herd biosecurity assessments are being done using the BiocheckUGent tool developed by University of Ghent and delivered by Private Veterinary Practitioners (PVPs) through the Targeted Advisory Service on Animal Health (TASAH) under the Rural Development Programme (2014-2020).

Biosecurity at a pig farm includes all measures taken to minimise the risk of introduction and spread of infectious agents, and thus includes all actions for keeping the pigs and the farm healthy. By taking these biosecurity measures and performing efficient management, on-farm animals are protected against both endemic and epidemic diseases (Dewulf and Van Immerseel, 2018).

In the BiocheckUGent biosecurity assessment, a distinction is made between external and internal biosecurity. External biosecurity focuses on the contact points of the farm with the outside world and aims to prevent pathogens from entering or leaving the farm. This applies both to exotic diseases, which occur rarely in a country, as well as to endemic diseases, which are common in a country but do not occur on every farm. All measures taken to counteract the spread of pathogens within a farm are covered by internal biosecurity (Anonymous, 2010). The BiocheckUGent biosecurity assessment for pigs is further divided into sub-sections:

- **External biosecurity**
 - » Purchase of breeding pigs, piglets and semen
 - » Transport of animals, removal of deadstock and manure
 - » Feed, water and equipment supply
 - » Visitors and farmworkers
 - » Vermin and bird control
 - » Location of the farm
- **Internal biosecurity**
 - » Disease management
 - » Farrowing and suckling period
 - » Nursery Unit
 - » Finishing unit
 - » Measures between compartments, working lines and use of equipment
 - » Cleaning and disinfection

As of the beginning of October 2022, 342 units have been



Figure 1. Screenshots of the PHC biosecurity dashboards (left – tab “Scores”, right – tab “Year on Year”).

reviewed in terms of their biosecurity. External biosecurity scores higher (average of 81 per cent in a score from 0 per cent [poor] to 100 per cent [excellent]) than internal biosecurity (average of 66 per cent) for these herds.

The areas where scores are typically lower (i.e., poorer biosecurity) are:

- the management of feed, water and equipment coming onto farms;

- the measures implemented between compartments and the use of equipment within the farm;
- the cleaning and disinfection procedures; and
- measures focusing on the farrowing unit and suckling period (e.g., washing sows before entering the farrowing room, cross-fostering etc.).

Of the 342 units assessed up to the beginning of October 2022, 201 units have done at least two biosecurity assessments. For



Figure 2. Screenshots of the PHC tail biting dashboards (top – tab “Risk factors related with”, bottom – tab “Year on Year”).

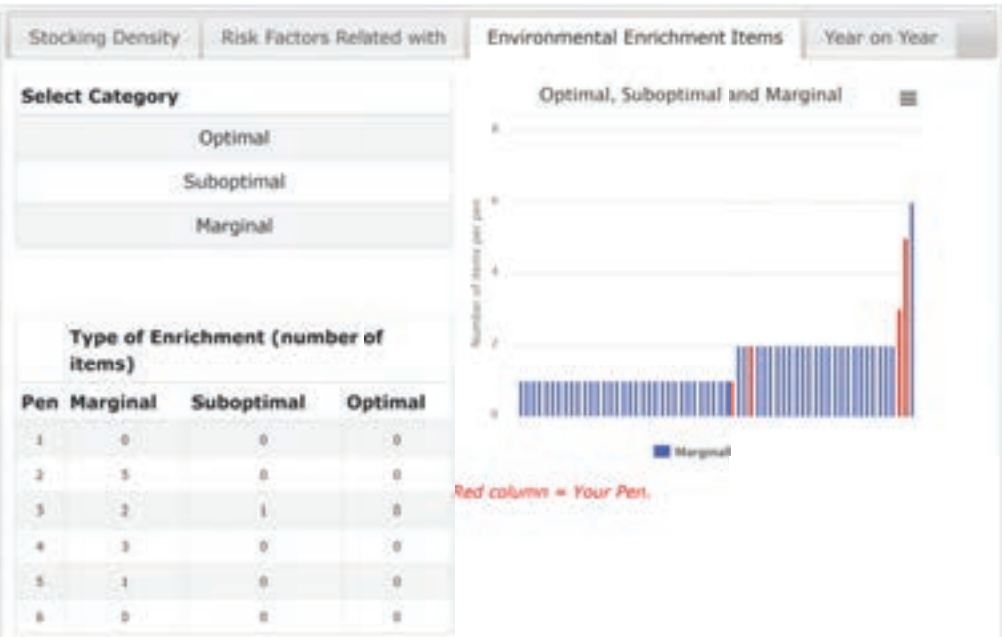


Figure 3. Screenshots of the PHC tail biting dashboards (tab “Environmental Enrichment Items”).

these units, there was an overall improvement in their internal, external and overall biosecurity scores between visits (average of 71 per cent for initial visits and 74 per cent for recent visits). The dashboards for this area benchmark farm results against the national average (Figure 1 – left) and over time (Figure 1 – right). This helps to identify weak areas and provide farm specific recommendations in how to improve.

TAIL BITING

Routine tail docking, although banned in the EU, is commonly practiced in conventional pig farming as it reduces the risk of tail biting. Tail biting is an abnormal behaviour of pigs related to suboptimal housing and/or management involving stress and reduced welfare. It is associated with an inability to perform species-specific behaviours related to exploration (enrichment) and searching for food (rooting) (EURCAW).

Rearing of pigs with intact tails is not a simple task. Carrying out an assessment to identify the risk factors present on farm is the first step in the journey to rearing pigs with intact tails.

This assessment of risk factors for tail biting has been developed by Teagasc, DAFM and AHI and delivered by PVPs through TASA. It is based on the Commission Staff Working Document (EC, 2016) and considers six categories of risk factors, which are associated with:

- the enrichment materials provided;
- thermal comfort and air quality;
- health status;
- competition for food and space;
- pen design; and,
- feeding processes.

Each category has several risk factors associated with it. For example, competition for food and space is negatively affected

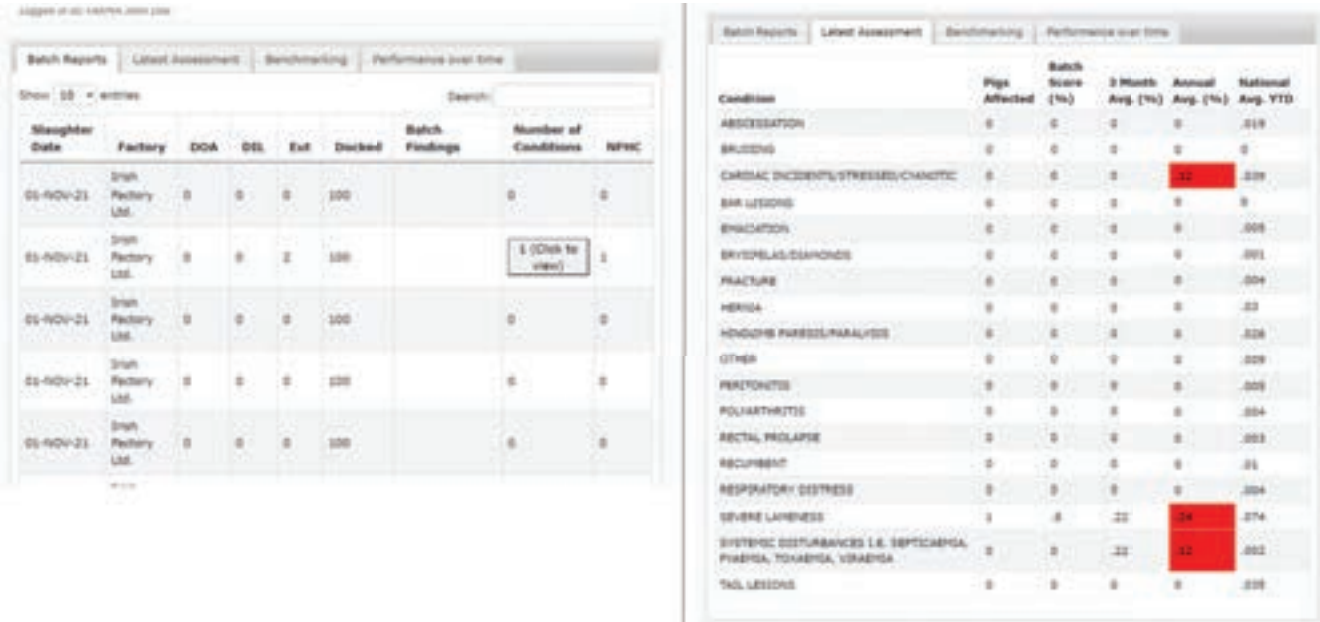


Figure 4. Screenshots of the PHC Ante Mortem dashboards (left – tab “Batch Reports”, right – tab “Latest assessment”). When the farm annual average is higher than the national average for a particular conditions that is flagged red.

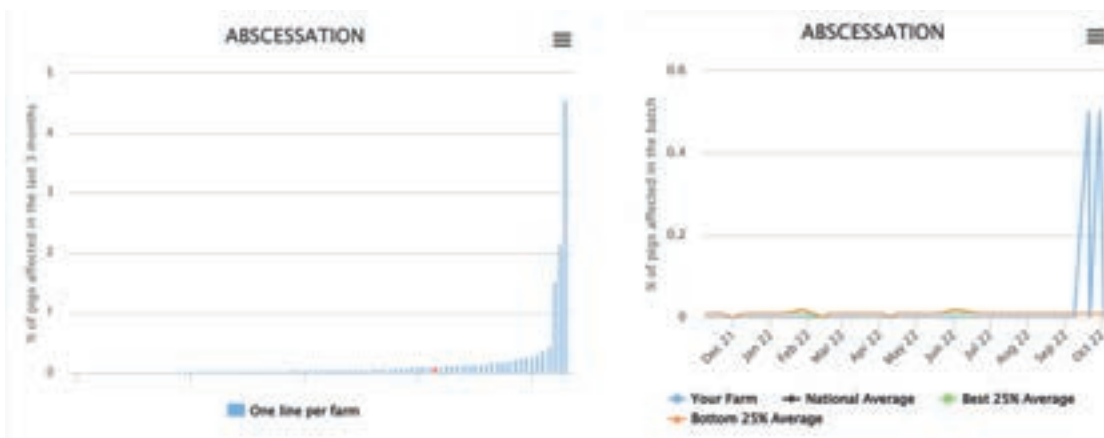


Figure 5. Screenshots of the PHC Ante Mortem dashboards (left – tab “Benchmarking”, right – tab “Performance Over Time”).

by high stocking density, inadequate numbers of feeders or drinkers compared to the number of individuals in the group, delays in the delivery of feed and mixing of animals (ref EURCAW).

By the beginning of October 2022, 574 assessments had been completed for 340 units. These cover almost 88 per cent of the pig herds with more than 100 pigs in Ireland. In around 94 per cent of the farms assessed, one or more risks for tail biting have been identified. These assessments show that provision of adequate environmental enrichment is the main area that requires improvement. 182 of the 340 units have been assessed more than once.

The dashboards for this area benchmark farm results against other farms for several risk categories (Figure 2 – top) and over time (Figure 2 – bottom). This helps to identify weak areas and provide farm-specific recommendations in how to improve over time.

One of the parameters shown by the dashboards is the provision of enrichment material. Providing a sufficient quantity of suitable materials is necessary to enable pigs to fulfil their innate needs to look for food (edible materials), bite (chewable materials), root (investigable materials) and manipulate (manipulable materials) (EC, 2016). The enrichment material is

Salmonella Recommendations 2022

Control Plan Available Below Scores and Chart

Control Plan	Risk Assessment	Salmonella Serology	Salmonella Culture
Herd Number	AB001		
Herd Name	JOHN DOE		
Herd Address	MAIN STREET, TOWN, COUNTY, IRELAND		
Completed By	JOHN DOE		
Salmonella Code	2022		

Recommendations	How to measure it?	Implemented by whom?	Implemented by when?
Clean and disinfect weaners stage 1 after each batch	check list	Farmer	December 2022
Provide organic acids to finishers	record amount each time	farmer	November 2022
clean and disinfect hospital pens frequently	check list	farmer	October 2022
consider using vaccine for Salmonella	record amount used	farmer	March 2023
consider adding organic acids to weaners	record amount used	farmer	June 2023

What you are already doing that prevents/reduces Salmonella at farm level and should carry on doing?

- carry on cleaning and disinfecting the finisher pens after each batch
- continue with the rodent control programme
- continue not sourcing animals from other farms
- carry on using different boots between compartments in the farm

Figure 6. Farm Salmonella Control Plan example.

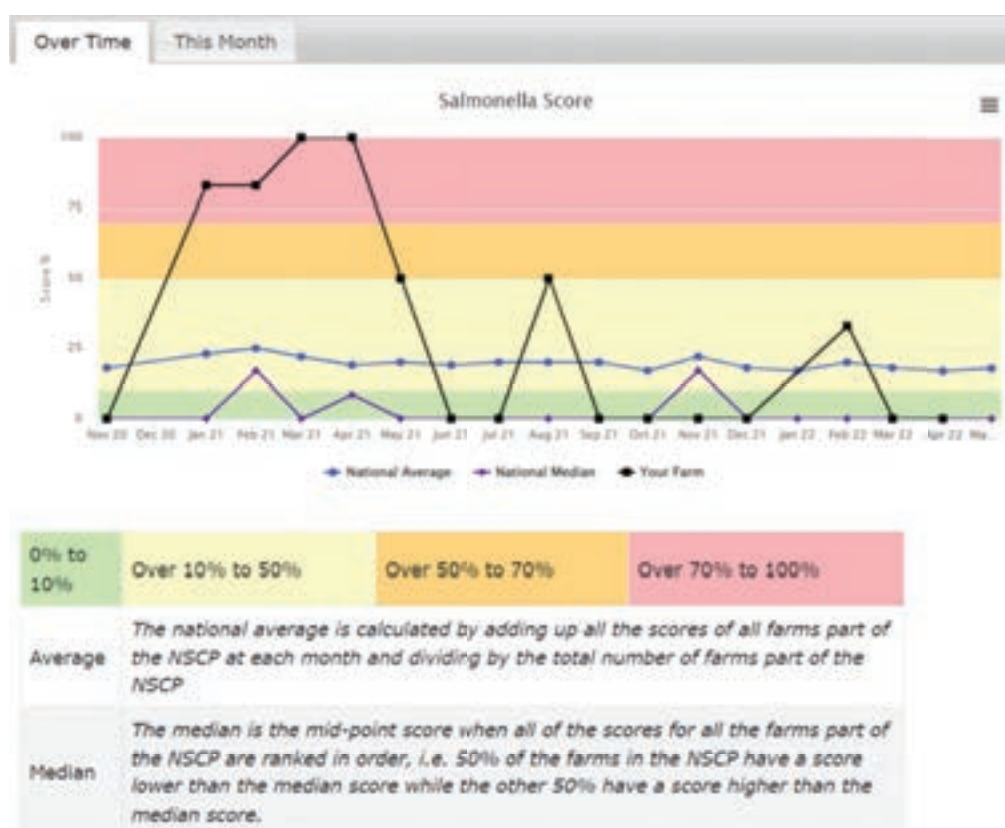


Figure 7. Dashboard displaying the Salmonella score for a farm over time (black line), the national average (blue line) and the national median (purple line).

ranked into one of three categories (optimal, suboptimal and of marginal interest) based on the nature of the material itself and on the way it is presented (as bedding or not).

Optimal materials can be used alone because they possess all the necessary characteristics to meet pigs' needs. They include straw, (from cereals and legumes), green fodder (hay, grass, silage, alfalfa, etc.), miscanthus pressed or chopped, root vegetables (e.g., turnips, fodder, beet swede) when used as bedding.

Suboptimal materials can be used as an essential component of the pig's enrichment but should be used in combination with other materials. They include peanut shells, ground wood, ground maize corn cobs, natural ropes, compressed straw cylinders, pellets, hessian cloth, shredded paper or natural soft rubber.

Materials of marginal interest should not be used as an essential or single component of pig enrichment materials. They can provide distraction but should not be considered as fulfilling the essential needs of the pigs. Other materials should also be provided. Materials of marginal interest include objects such as hard plastic piping or chains.

The dashboards show the number of different categories of enrichment materials provided (Figure 3).

ANTE-MORTEM DATA

Ante-mortem (AM) data from pigs slaughtered in the main pig factories started being recorded electronically in November 2020. These data are being transferred to the PHC web application; farmers and their PVPs can log in to see their results per batch and to benchmark them against the average.

This activity will be expanded to post-mortem (PM) data when the system for PM data capture is finalised and implemented by DAFM.

From November 2020 to the beginning of October 2022, 6,497,633 pigs were slaughtered. Severe lameness was the most frequent condition detected at ante-mortem, albeit with very low incidence (0.08 per cent) followed by tail lesions (0.04 per cent).

The dashboards display the results for all batches slaughtered (Figure 4 – left) and for the last batch slaughtered (Figure 4 – right). The other dashboards benchmark the results per lesion for the last three months (Figure 5 – left) and compare incidence over time for the farm (Figure 5 – right). Farmers and their PVPs should use these results to monitor health at farm level.

SALMONELLA

The PHC Implementation Group is currently amending the National Salmonella Control Programme (NSCP) to introduce the annual collection and culture of environmental samples from finishing pens. These samples will be tested to see if *Salmonella spp.* are detected, and, if so, which strain(s) are present in the farm. This will help inform the farm's control plan for Salmonella.

A new Salmonella TASA activity has been developed to implement this proposal and started at the end of June 2022. The farm's attending veterinary practitioner will collect environmental samples from finishing pens and collect supplementary management information when carrying out the biosecurity assessment. The samples will be tested,

and if *Salmonella* Typhimurium or monophasic *Salmonella* Typhimurium is detected, further sampling will be done by the PVPs in other sections of the farm to identify the areas contaminated with these strains. All this information will be used to develop the farm's control plan for *Salmonella*, which will be drawn up by the PVP in agreement with the farmer. Dashboards have been developed to support this activity, which will provide a farm specific *Salmonella* Control Plan (Figure 6). One of those dashboards displays the *Salmonella* score from meat juice ELISA over time (Figure 7). Six meat juice samples from farms slaughtering pigs in Ireland are collected and tested each month. A weighted score is attributed to the farm based on the results of the last three assessments. This dashboard can be used to identify the time of the year where the *Salmonella* score is high and also to track if measures implemented to reduce the score have been successful.

AMU

Antimicrobial usage (AMU) is being reported by pig farmers to the database created by DAFM. Farmers can share that data with the PHC database. Linking AMU data with the other data in the PHC database (e.g., biosecurity, AM data) will allow the demonstration of inter-relationships between health and AMU (e.g., low AMU associated with high health status). Dashboards are being developed to display this data for farmers and their attending veterinarians. Bord Bia, in September 2021, updated their Pig Quality Assurance Standard to include a requirement for these farm biosecurity and tail biting risk assessments to be carried out annually, along with the quarterly submission of

AMU data to the DAFM database.

The veterinary assessments for biosecurity, tail biting and *Salmonella* are provided free of charge for farmers and are funded through TASA under the Rural Development Programme, with payment made directly to the PVP following completion of the assessment/review. Only PVPs who have been trained in these assessments are funded for their delivery. AHI plan to conduct further training sessions on these in the future. To register your interest in this training, or to book a place, please enter your details at <https://portal.animalhealthireland.ie/traineoi/>.

REFERENCES

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- Dewulf and Van Immerseel, 2018. Biosecurity in animal production and veterinary medicine. Acco.
- EC, 2016. COMMISSION STAFF WORKING DOCUMENT on best practices with a view to the prevention of routine tail-docking and the provision of enrichment materials to pigs. https://food.ec.europa.eu/system/files/2016-12/aw_practice_farm_pigs_stfwrkdoc_en.pdf
- EURCAW Tail biting and tail docking dossier <https://eurcaw-pigs.eu/dossier/tail-biting-and-tail-docking-dossier> (accessed on 13/09/2022)

Reader Questions and Answers

1. WHICH AREAS ARE COVERED BY THE PIG HEALTHCHECK PROGRAMME?

- A. Biosecurity, animal nutrition, animal health, animal welfare and antimicrobial usage
- B. Biosecurity, animal welfare, animal health, *Salmonella* and antimicrobial usage
- C. Biosecurity, animal nutrition, animal health, *Salmonella* and antimicrobial usage
- D. Biosecurity, animal welfare, animal health, *Campylobacter* and antimicrobial usage

2. THE DEFINITION OF BIOSECURITY INCLUDES?

- A. Minimising the risk of introduction of disease
- B. Minimising the risk of spread of disease
- C. Avoiding spread of disease to other farms
- D. All of the above

3. ACCORDING TO THE BIOCHECKUGENT SYSTEM, EXTERNAL BIOSECURITY IN PIG FARMS INCLUDES, AMONG OTHERS, MEASURES RELATED TO?

- A. Visitors and farmworkers and purchase of animals
- B. Cleaning and disinfection
- C. Management of disease
- D. None of the above

4. WHAT ARE THE SIX CATEGORIES OF RISK IN THE RISK ASSESSMENT FOR TAIL BITING?

- A. The enrichment materials provided, productivity, health status, competition for food and space, pen design, and feeding processes.
- B. The enrichment materials provided, thermal comfort and air quality, health status, competition for food and space, biosecurity, and feeding processes.
- C. Biosecurity, thermal comfort and air quality, health status, competition for food and space, pen design, and feeding processes.
- D. The enrichment materials provided, thermal comfort and air quality, health status, competition for food and space, pen design, and feeding processes.

ANSWERS: 1B; 2D; 3A; 4D.