Plan Overview

A Data Management Plan created using DMPonline

Title: Mitigating effects of ginger on broiler breeders under heat stress

Creator: Guangju Wang

Principal Investigator: Bas Kemp

Project Administrator: Henry van den Brand, Minhong Zhang

Affiliation: Wageningen University and Research (Netherlands)

Template: Data Management Plan | Wageningen University and Research

Project abstract:

High ambient temperature is a serious problem in the poultry industry, especially in tropical regions. Due to global warming, this phenomenon becomes more serious. Effects of heat stress on physiological functioning, health, welfare and performance are particularly investigated in broilers, but less attention has been paid to broiler breeders. Heat stress might not only affect the broiler breeder itself, but might also indirectly influence the offspring health, welfare and performance via transgenerational epigenetic effects.

Several strategies can be used to mitigate negative effects of heat stress, including improving environmental conditions and feeding nutritional supplements, such as vitamin E, selenium and organic chromium. Other nutritional supplements include herbs, such as menthol, ginger, lemon balm, sage and nettle. Effects of nutritional supplements in general and herbs in particular in broiler breeders are hardly investigated and carryover effects of these herbs on the offspring are also largely unknown. In this project, ginger will be used as model herb to investigate heat stress mitigating effects in broiler breeders and this might also affect the offspring in two potential ways. Heat stress might affect egg composition and consequently chicken quality at hatching and ginger might reduce these effects on egg composition. Additionally, heat stress might also affect gene expression of important proteins, which indirectly might have consequences on the offspring, particularly in relationship to heat stress and immune response and again ginger might affect this gene expression. Since ginger is a residue-free, healthy and safe ingredient, it could be a useful factor in mitigating heat stress in broiler breeders and their offspring. The aim of this project is to investigate effects of ginger in broiler breeder diets during heat stress on their health, welfare and performance and also on the carryover effects in the offspring.

ID: 134156

Start date: 01-02-2023

End date: 01-02-2027

Last modified: 10-10-2023

Mitigating effects of ginger on broiler breeders under heat stress

A. Describe the research project

1. Name researcher (please, add your full name):

Guangju Wang

2. What is the name of your department?

- Animal Sciences

3. What is the name of your chair group or business unit? English name and abbreviation for chair groups from this page; business units from this page (expand to Wageningen Research and keep expanding to find your specific division / group). Examples: Bioprocess Engineering (BPE) or Contract Research Organization (CRO).

Adaptation Physiology Group

4. Describe the organisational context of your research project.

DMP version	5
Supervisor / (co-)promotors	Henry van den Brand Minhong Zhang Bas Kemp
Graduate School (WU only)	WIAS
Start date of project	2023-02-01
End date of project	2027-02-01
Project number	
Funding body	Chinese Academy of Agricultural Sciences

5. Give a short description of your research project.

Title	Mitigating effects of ginger during heat stress in broiler breeders
Summary	High ambient temperature is a serious problem in the poultry industry, especially in tropical regions. Due to global warming, this phenomenon becomes more serious. Effects of heat stress on physiological functioning, health, welfare and performance are particularly investigated in broilers, but less attention has been paid to broiler breeders. Heat stress might not only affect the broiler breeder itself, but might also indirectly influence the offspring health, welfare and performance via transgenerational epigenetic effects. Several strategies can be used to mitigate negative effects of heat stress, including improving environmental conditions and feeding nutritional supplements, such as vitamin E, selenium and organic chromium. Other nutritional supplements include herbs, such as menthol, ginger, lemon balm, sage and nettle. Effects of nutritional supplements in general and herbs in particular in broiler breeders are hardly investigated and carryover effects of these herbs on the offspring are also largely unknown. In this project, ginger will be used as model herb to investigate heat stress mitigating effects in broiler breeders and this might also affect the offspring in two potential ways. Heat stress might affect egg composition and consequently chicken quality at hatching and ginger might reduce these effects on egg composition. Additionally, heat stress might also affect gene expression of important proteins, which indirectly might have consequences on the offspring, particularly in relationship to heat stress and immune response and again ginger might affect this gene expression. Since ginger is a residue-free, healthy and safe ingredient, it could be a useful factor in mitigating heat stress in broiler breeders and their offspring. The aim of this project is to investigate effects of ginger in broiler breeder diets during heat stress on their health, welfare and performance and also on the carryover effects in the offspring.

6. List the individuals responsible for the following data management tasks.

Data collection	Guangju Wang; Zhenwu Huang; Miao Yu; Mengjie Xu; Ruiling Dong; Huan Ge; Shaomeng Zhao; Dandan Ma
Data quality	Guangju Wang; Fengjing Hai; Minhong Zhang
Storage and backup	Guangju Wang; Monique Ooms
Data archiving / publishing	Guangju Wang; Henry van den Brand; Minhong Zhang
Data stewardship / support	Monique Noms

7. I have requested a review of this data management plan from:

- WUR Library - Data Management Support (data@wur.nl, via the 'Request feedback' tab).
- The data steward of my chair group / business unit.

8. Name of the data management support staff and / or data steward consulted during the preparation of this plan and date of consultation.

Data manager:

Dr Irene Verhagen
WUR Library - Data Management Support

data@wur.nl
Consult date: 2023-10-09

B. Describe the data to be collected, software used, file formats and data size.

9. Will you reuse existing data for this project?

- No. Please describe below any constraints to reusing existing data.

We will not reuse existing data for this project, all data produced in this project will be original.

10. Will new data be produced?

- Yes.

11. Please describe the data you expect to generate and / or use in the table below. Include reused existing data as well (as these are files that you manage and store).

File contents	Data type	Software	(Open) file format	Estimated size of each file (range)	Estimated number of files (range)
lab analysis	numerical	Excel Word	.csv .docx .xlsx	300Mb-2Gb	50-100
gene sequence	numerical and code	Fastq BCL	.ora .txt .docx .pdf .vcf	5Gb-10Gb	3000-5000
tissue stained sections	picture	Visiopharm	.vsi .jpg .png	500Mb-1G	50-100
egg quality scores	numerical	Excel	.csv .xlsx	10Mb-50Mb	10-30
statistical analysis	code statistical data	R studio SPSS	.sav .R	100Mb-500Mb	1000-5000

12. Estimate how much data storage you require in total (e.g. by using the information in

the table at question 11).

- 10-100 GB

C. Storage of data and data documentation / metadata during research

13. Where will the data and accompanying documentation / metadata be stored and backed up during the research project (see the WUR Data Storage Finder)? Include platforms you use to share data, collect data on, or send data to for processing or analysis.

- WUR OneDrive for Business - only when an up to data version of the research data is also safely stored on the W:drive or Yoda.
- W:drive Enterprise File Storage (WUR network drive).

D. Structuring your data and information

14. Give a (visual) representation of the folder structure you intend to use.

There are in total 5 folders in each experiment which are shown below: GFBB=ginger for broiler breeder -GFBB-protocols -GFBB-primary
-GFBB-secondary
-GFBB-statistics
-GFBB-paper

15. Describe the file naming conventions you intend to use. Please give one or multiple example(s).

[GFBB]_[performance]_[bodyweight]_[date]
[GFBB]_[pathology]_[live sections]_[date]

16. How will you distinguish between versions of files (multiple answers possible)?

- Dates within file names are updated when files are modified.

E. Data documentation and data quality

17. Describe below what data documentation and metadata will accompany the data to help make the data findable, understandable, and reproducible.

- The WUR readme file template (see template at https://doi.org/10.5281/zenodo.7701727).

18. Describe what data and analysis quality controls will be used?

- We will perform preliminary (pilot) experiments to validate intended experimental methods.
- We will use repeated measurements to validate results (e.g. duplicate or triplicate analysis, multiple observer agreement, measurements taken over time, etc.).
- We will use standard and validated protocols where appropriate.
- Supervisors or peers will review the data and results for any anomalies (e.g. unexpected inconsistencies, outliers, correct labeling of data and / or treatments, correct and consistent coding applied, etc.).

F. Working with sensitive data (personal data, ethics), data ownership, sharing and access

19. Who is the (rights)holder of the data (commonly known as the owner of the data)?

- WUR is not the (only) (rights)holder of the data and a WUR approved formal (consortium) agreement or contract between WUR and other parties is present.

20. What is the data classification for your project (for example as specified in SmartPIA) taking into account the (privacy) sensitivity of the data?

- Negligible.

21. Is this project registered in SmartPIA?

- No. Please register in SmartPIA in the case (privacy) sensitive data is collected (when applicable: via your supervisor, the project manager, see guidance).

22. Please specify the (sensitive) data and privacy protection measures. Note that any measures undertaken should be consulted with the Information Security Officer (ISO) and Privacy Officer (PO).

- Data is classified as negligible and standard WUR security measures are undertaken.

23. Are there other ethical issues that need to be taken into account which may include approval from ethical committees?

- I work with animals and will seek / have approval of the ethics committees involved (Animal Welfare Body (IvD), Animal Tests Committee (DEC), Central Animal Testing Committee (CCD)).

I work with animals in China and will seek the approval of the Institutional Ethics Committee of Experiment Animal Welfare and Ethical at the Institute of Animal Science of Chinese Academy of Agricultural Sciences.

24. Will there be any intellectual property (IP) rights associated with the data?

- No.

G. Data archiving and publishing

25. Are there reasons to restrict access to the data or limit which data will be made publicly available?

- No.

26. Describe what data from question 11 will be archived internally (e.g. WUR network drive / Yoda) and not published, for a minimum of 10 years? Include the exact name for the storage medium chosen (see the WUR Data Storage Finder).

- Not applicable as data will be published.

27. What data will be published and made available for reuse via a data repository?

- Data underlying publications or reports. Please specify below which data listed in question 11.

all of the data in question 11 will be published.

28. When will the data be available for reuse, and for how long will the data be available?

- Data will be available for at least 10 years as soon as the article or report is published and not required for any other article publication.

29. Which data repository do you intend to use to make the data findable and accessible (see the WUR Repository Finder)?

- DANS-EASY.

30. Which metadata standard will be used to describe the data during internal archiving and / or depositing in a data repository?

- Yoda metadata (DataCite metadata standard).

31. Which licence/terms of use will be applied to the data?

- Open access (Creative Commons Attribution licence (CC BY); anyone can access and reuse with attribution).

32. If software is generated in this project, describe your publishing strategy below.

not applicable

H. Data management costs

33. What resources (in time and / or money) will be dedicated to data management, data archiving or publication, and ensuring that data is reusable? Indicate as well how these costs will be covered.

- The PhD candidate and supervisor will spend at least 10% of their time on research data management to approach the FAIR principles as much as possible.

- All costs for 10 year data storage and access management to that data after journal publication or report are covered by the research group / project.