



# RESEARCH UPDATE

## EarWel

Elucidating etiology and risk factors for ear lesions on Irish pig farms.

This project is a collaboration between Teagasc & University College Dublin. It is aimed at the understanding the cause and potential risk factors for ear biting and ear necrosis on Irish pig farms.

### Background

Ear necrosis is a growing economic and welfare concern that is characterized by black, bloody, and necrotizing lesions on the upper pinna of pig ears. However, the multifactorial etiology of ear necrosis is not well understood. One proposed theory describes ear biting as the root cause of ear necrosis whereby the trauma to the ears enables infection by bacteria. Another postulates the culprit as a systemic inflammatory response prompted by stressors possibly associated with weaning and nutrition.

### Objectives

1. To determine the effect of post-weaning nutritional strategies on the development of ear directed behaviours that are potentially associated with the development of ear necrosis.
2. To determine whether damaging behaviour performed by pigs post-weaning is a risk factor for the development of ear necrosis.

### Study 1 - The effect of post-weaning nutritional strategies on damaging behaviours and the development of ear necrosis.

Weaning stress, specifically poor nutrition and poor health, is associated with more damaging behaviour which can be a trigger for ear necrosis. Ear-directed behaviour can compromise the skin integrity leaving it vulnerable to infectious agents that cause ear necrosis. In addition, decreased feed intake and diet change during the weaning process can be a precursor for ear necrosis due to an internal inflammatory response. Therefore, it was hypothesized that a nutritional intervention during weaning would influence ear lesion development.

All the research for this experiment was completed at the Moorepark Pig Research Unit. The day before weaning 300 pigs were assigned to the following treatments: 1. Control: ad-libitum access to standard dry pelleted diet; 2. Standard pelleted diet plus ad-libitum access to liquid milk replacer for 4 days post-weaning (pw) followed by pelleted diets; 3. Standard pelleted diet plus ad-libitum access to liquid milk replacer for 10 days pw followed by pelleted diets; 4. Standard pelleted diet plus ad-libitum access to liquid starter diet for 4 days pw followed by pelleted diets; 5. Standard pelleted diet plus ad-libitum access to liquid starter diet for 10 days pw followed by pelleted diets. The main measures employed were live behaviour observations and ear lesion scoring of pigs post-weaning.

Although we are still in the initial phases of analysis and there are few treatment differences, some interesting observations are apparent. The highest frequency of ear-directed behaviour was observed in pigs at 3 weeks post-weaning (0.57 bites per pen per minute – this equates to 34 ear bites in a pen of 10-12 weaner pigs in one hour), and performance of the

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behaviour decreased thereafter. Ear biting was much more prevalent than tail biting in the weaner stage. Ear lesions began to appear as early as one week post-weaning. It appears that ear lesions were slightly more common on the right ear than the left ear. Scores of 3 were most prevalent in week 6 post-weaning (Figure 1). Scores of 4 were most prevalent in weeks 7-9 post-weaning. Finally, the most severe scores, score 5, were most prevalent in week 9 post-weaning. Despite high levels of ear biting throughout the weaner stage, only 10% of pigs were affected with an ear lesion on the week when ear lesions were the most prevalent (week 6).

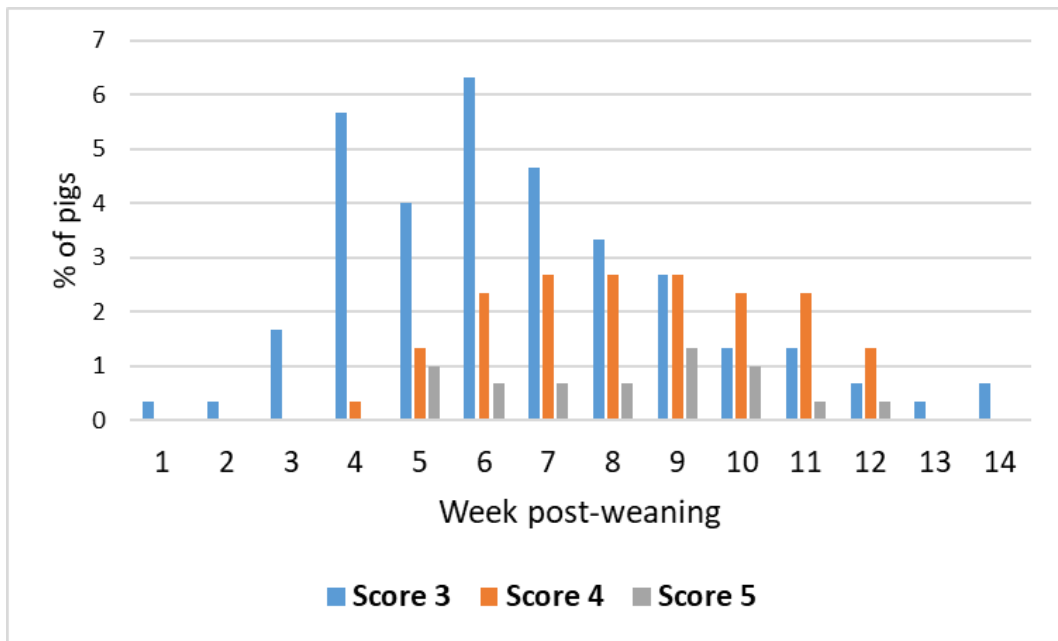


Figure 1. Percentage of pigs affected by moderate to severe ear lesions (scores 3 to 5) during weeks 1-14 post-weaning.

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PhD Student



Lucy Markland is the PhD student working on the EarWel project. She is supervised by Laura Boyle at Teagasc and Nola Leonard at University College of Dublin.

Lucy completed her MSc in animal science at Purdue University, Indiana, USA, and is passionate about all things animal welfare.

**Take home message**

- The highest frequency of ear-directed behaviour was observed in pigs at 3 weeks post-weaning
- Ear biting was more prevalent than tail biting in the weaner stage
- Ear lesions began to appear as early as one week post-weaning
- Only 10% of pigs were affected with an ear lesion on the week when ear lesions were the most prevalent