

Effective piglet enrichment: Development and reduction of damaging behaviours

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SUMMARY

Tail biting is a behavioural problem that impacts pig welfare and the economics of pork production. Environmental enrichment can reduce damaging behaviours, but practical information on enrichments for young pigs is lacking. The project contained two studies to evaluate enrichment at two life stages to identify whether early, late, or continuous enrichment is most effective. In Study 1 pigs at 4 to 8 weeks of age were provided one of four different enrichment treatments. Results confirmed that pigs prefer enrichment objects that are destructible, deformable, and chewable. Burlap strips produced the highest level of piglet interaction, but had to be replaced frequently, resulting in increased labour and material costs. Newsprint was consumed rapidly (usually within one hour), but provoked more play behaviour than all treatments except burlap. Study 2 will examine the long-term effect of early vs late enrichment with scented newspaper on pig growth and the development of damaging behaviour.

INTRODUCTION

Tail biting is a behavioural problem that impacts pig welfare and economics of production. Providing enrichment early in life may reduce the frequency of severe tail bites during the finishing stage. Research is needed to determine the importance of early enrichment and the type(s) of enrichment that are most effective.

Moreover, improper or inconsistent use of enrichments may have a negative impact and decrease animal welfare. For example, when pigs are moved from an enriched environment to a barren environment, they can show increased levels of problematic behaviours such as tail biting or manipulation of pen fixtures. Also, if a limited amount of enrichment is provided, it can increase competition and aggression. There is limited research looking into the effects of providing enrichments during only a portion of the pig's life, be that early (farrowing/nursery) or late (finishing).

This project aims to identify enrichments that are not only beneficial to the pigs' health and welfare but are also practical and cost-effective for producers to install and maintain.

EXPERIMENTAL PROCEDURES

Study 1. Selection and evaluation of enrichments in nursery pigs

A total of 160 weaner piglets were housed at 10 pigs/pen. The trial began when pigs were four weeks of age and finished at eight weeks of age. Each pen was assigned to one of four treatments: 1) Rope and burlap (RB); 2) PorkyPlay® and EasyFix Luna® pig toys (PL); 3) Rubber mats with dry or wet mash starter feed (M); and 4) Newsprint with and without added odour (N). The M and N enrichments were provided three days per week, whereas the RB and PL treatments were available continuously. Continuous enrichments were replaced as needed. Material and labour costs were recorded. Piglet behaviour in every pen was measured using video recordings with observations of 50 minutes per day for three days per week for two weeks. The behaviours observed included enrichment interaction (frequency and duration), object play and possessive aggression.

Study 2. Effects of environmental enrichment on behavioural development and long-term implications

A total of 240 piglets will be assigned to one of two treatments from 1 to 8 weeks of age (farrow room and nursery period): Enriched (E) pens receiving scented newsprint three days per week, or Control (C). When pigs move to the grow-finish pens at 8 weeks of age, half of the Enriched pigs will be switched to the Control treatment and vice versa to create 4 distinct treatments: Enriched early and late (EE), Enriched early/Control late (EC), Control early/Enriched late (CE), and Control early and late (CC). Enrichment use, aggression and the frequency of damaging behaviours will be recorded. A subset of



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pigs will be subjected to a series of individual behavioural tests. Tail biting scores will be taken weekly in the grow-finish phase. Post-mortem production measures such as blood glucose and cortisol, as well as carcass lesions and quality data will be taken on 20 pigs per treatment.

RESULTS AND DISCUSSION

Study 1. Selection and evaluation of enrichments in nursery pigs

The results of Study 1 indicated that the Rope and Burlap (RB) enrichment had the highest frequency and duration of piglet interaction. See Figures 1 and 2. Newsprint (N) was only available for 1/5 of the time compared to the continuous enrichments, but had the highest frequency of object play, as shown in Figure 3.

While Burlap enrichment resulted in a high level of interaction and play by piglets, it also needed to be replaced most frequently, resulting in higher labour and material costs. Based on the high levels of activity observed with scented newsprint (especially considering that it was available for a shorter time period), as well as low materials cost, lack of issues with the liquid manure system and the ability of this treatment to retain novelty over time, it was selected for use in Study 2, which will be carried out in 2023.

IMPLICATIONS

Study 1 results confirmed that pigs prefer enrichment objects that are destructible, deformable, and chewable. Burlap, while having the highest level of interaction, had to be replaced most frequently, resulting in increased labour and material costs. Newsprint was consumed rapidly, but still provoked more play behaviour than all treatments except burlap.

Study 2 will examine the long-term effect of early enrichment on development of damaging behaviour.

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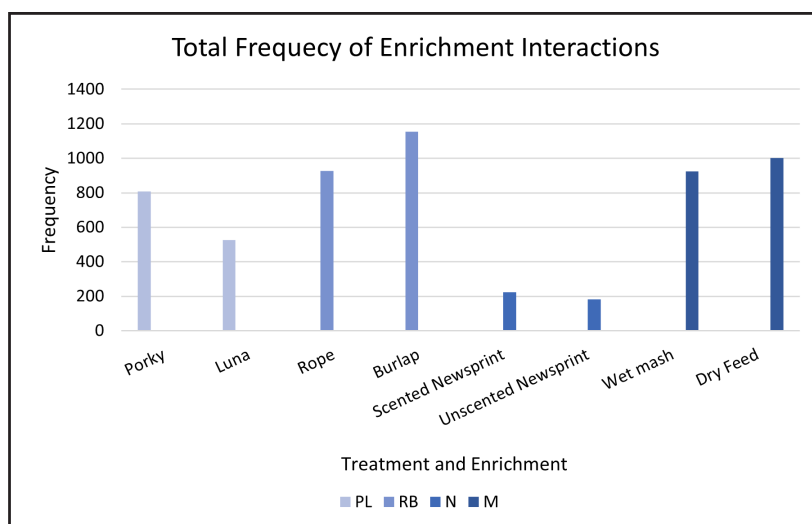


Figure 1. Total frequency of enrichment interactions per pen over a 40-hour observation period (5 hours per pen).

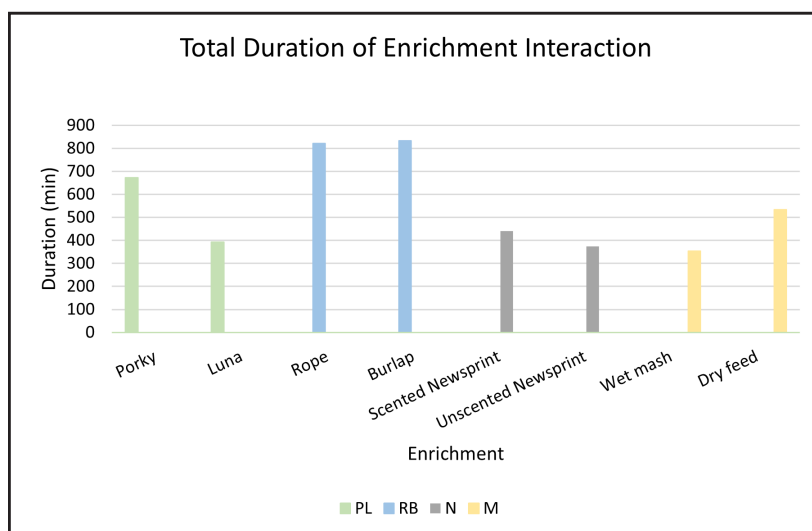


Figure 2. Total duration of enrichment interactions over a 40-hour observation period (5 hours per pen).

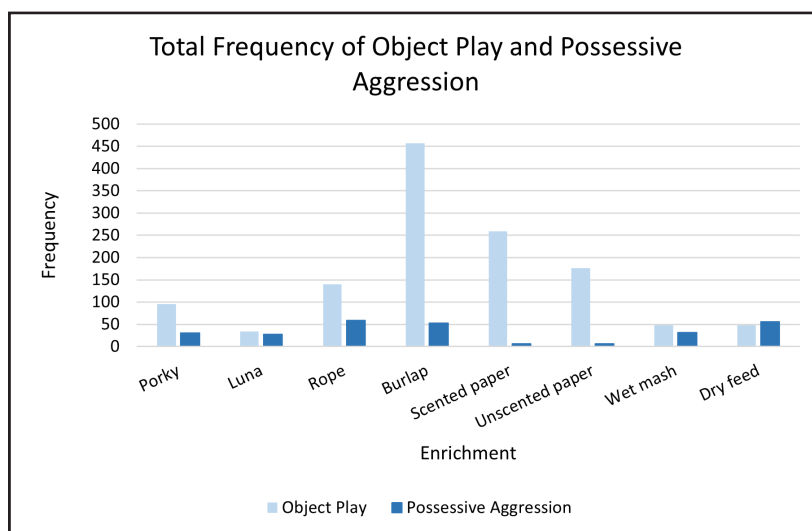


Figure 3. Total frequency of object play and possessive aggression over a 40-hour observation period (5 hours per pen). Possessive aggression is defined as the performance of forceful pushing, biting, or head knocking pen-mate(s) in order to gain or prevent access to an enrichment object. Object play is defined as the performance of playful, spontaneous head movements or locomotion involving enrichment interaction.