Call for Extended Abstracts (previously referred to as 1-Page Papers)

Authors are invited to submit extended abstracts for presentation at the 16th Biennial Conference of the Australasian Pig Science Association and inclusion in the Conference proceedings. The 2017 Conference Proceedings will be published as a Special Issue of Animal Production Science (http://www.publish.csiro.au/nid/72/aid/2405.htm). All extended abstracts must meet the Journal’s criteria for relevance, newness, soundness and brevity, with each paper reviewed by at least two independent referees before acceptance for publication. All submissions must be prepared using the template provided on the APSA website. Please follow the instructions carefully and also please note that an extended abstract is a paper in miniature and is not a traditional abstract.

Deadline for Submission – 21 APRIL 2017

In order to have the proceedings available at the conference it is necessary to adhere strictly to the deadlines for the submission, refereeing and resubmission of extended abstracts. Authors who do not adhere to these deadlines will have their papers declined.

Extended abstracts must be accompanied by a signed Copyright/Licence to Publish form as per the requirements of the Journal. Further details regarding copyright can be found on page 9 of this document or the Animal Production Science website (http://www.publish.csiro.au/?nid=75&aid=4023).

Submission Checklist (submission via the APSA website (www.apsa.asn.au))

- A copy of the extended abstract prepared on the template provided
- Completed Copyright/Licence to Publish Form.

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Each paper will be refereed on the basis of its relevance to pig science, the substance and originality of its results as well as the clarity of its presentation. The criteria used by the referees are listed on page 8.

CONTENT OF EXTENDED ABSTRACTS

**Please note:** Chemical or generic names but not product names can be used in the title of invited and submitted papers. Product names may be used in the body of the text provided that the chemical or generic name is also provided in parentheses after the first use of the product name.

Authors must include in the text of their paper sufficient information to justify its use as a scientific reference and to make it informative for those not able to attend the Conference.

The paper should contain the following:

(a) an outline of the problem examined and justification of the hypothesis(es);
(b) a clear statement of the hypothesis(es) or expectation and the methods used to test it;
(c) a statement of results and the statistical analyses used to analyse the data including an explicit statement of the experimental design applied;
(d) a conclusion from the work;
(e) a brief list of relevant references.

LENGTH

Extended abstracts must not exceed 1-page of A4 paper, including tables, figures and references and must use the Microsoft Word Extended Abstract Template provided on the APSA website.

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Follow the instructions on the form – **please do not alter any formatting**.

It is strongly recommended that you use the following guide so that you can fit your paper to just one page:

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2. **Authors** – maximum of 300 characters (including spaces)
3. **Address** – maximum of 400 characters (including spaces)
4. **References** – maximum of 275 characters (including spaces)
5. **Acknowledgements** – maximum of 160 characters (including spaces)
6. **Text/tables/figures** – the remaining space on the page.

See below for examples of papers published in the previous proceedings, *Manipulating Pig Production XV*. Please follow the template carefully and refer to the detailed instructions on pages 6-8.
Use of a nutritional lick block and higher feeding levels to reduce aggression and provide enrichment for sows in groups

T. L. Muller\textsuperscript{A,C}, M. J. Callaghan\textsuperscript{B}, R. J. E. Hewitt\textsuperscript{A} and R. J. van Barneveld\textsuperscript{A}

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There is evidence that providing enrichment may reduce aggression and fighting between sows at mixing (Schaefer et al. 1990), whilst the lack of substrate to allow opportunity for foraging and feel satiated once established in group housing can accentuate ongoing inter-sow aggression (Danielsen and Vestergaard 2001). It was hypothesised that the provision of a higher feeding level or the use of enrichment in the form of a supplemental block would reduce aggression at time of mixing.

A commercial dry sow diet [12.9 MJ digestible energy (DE)/kg, 0.40 g standardised ileal digestible lysine/MJ DE] was fed to all treatments which consisted of a control group fed at 2.3 kg sow/d, a block enrichment group fed at 2.3 kg sow/d and provided a 30 kg poured supplemental block (hard block, comprised of a range of ingredients including molasses, sugar beet pulp and magnesium oxide), and a group fed at 4.0 kg sow/d. All treatments were floor fed once daily at 0700 h. Thirty-six multiparous sows (Landrace X Large White) were used across this study, re-randomised into three treatment groups (n = 6) for each of six replicates. Eighteen sows were used in each replicate, with 18 sows off-test, to allow for completely unfamiliar groups at each replicate. This short-term assessment was appropriate given the 1–2 day timeframe associated with dominance aggression at mixing (Arey and Edwards 1998), and accounts for the period that sows can recognise each other (Spoolder et al. 1996). Each experimental replicate ran for 7 days with sows being housed initially in individual stalls for the first 3 days. At 0700 h on d 4 sows were shifted to their allocated group pen (1.5 m\textsuperscript{2}/sow). Daily data collection began on d 4 after mixing. Measures taken during each 4-day observation period included the supplemental block weight, aggressive behaviours (push, chase, attack, bite and threat) and posture observations for 1 hour after feeding. Data were analysed using the Univariate GLM procedure (GENSTAT, 15th Edition; UK).

The presence of either the supplemental block or higher feeding level had a significant positive effect on chase behaviour (Table 1). Sows fed the high feed level or provided with a supplemental block spent more time lying (P = 0.038) and less time standing (P = 0.006), and they also tended to spend less time involved in foraging behaviour than the control treatment (P = 0.084). The provision of a supplementary block or a higher feeding level of 4.0 kg/d appears to provide a method to modify the behaviour of the sow at mixing, increasing the time spent at rest (lying) and reducing the exhibition of foraging behaviour.

Table 1. Mean time (min) sows spent engaged in behaviour and posture 1 h after feeding over the 4 d of observation, for sows receiving 2.3 kg/d (Control), sows receiving a high-feeding level (4.0 kg/d, High Feed), or sows receiving a supplement block in addition to 2.3 kg feed/d (Block)

<table>
<thead>
<tr>
<th>Activity/Posture</th>
<th>Control</th>
<th>Treatment Block</th>
<th>High feed</th>
<th>SED\textsuperscript{b}</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Push</td>
<td>0.09</td>
<td>0.08</td>
<td>0.10</td>
<td>0.24</td>
<td>0.868</td>
</tr>
<tr>
<td>Chase</td>
<td>0.29\textsuperscript{a}</td>
<td>0.08\textsuperscript{b}</td>
<td>0.11\textsuperscript{b}</td>
<td>0.47</td>
<td>0.019</td>
</tr>
<tr>
<td>Attack</td>
<td>0.40</td>
<td>0.42</td>
<td>0.36</td>
<td>0.58</td>
<td>0.811</td>
</tr>
<tr>
<td>Bite</td>
<td>0.10</td>
<td>0.12</td>
<td>0.06</td>
<td>0.25</td>
<td>0.392</td>
</tr>
<tr>
<td>Threat</td>
<td>0.13</td>
<td>0.11</td>
<td>0.10</td>
<td>0.27</td>
<td>0.736</td>
</tr>
<tr>
<td>Foraging</td>
<td>28.48\textsuperscript{a}</td>
<td>25.67\textsuperscript{c}</td>
<td>25.15\textsuperscript{c}</td>
<td>9.76</td>
<td>0.084</td>
</tr>
<tr>
<td>Lying</td>
<td>9.13\textsuperscript{b}</td>
<td>13.30\textsuperscript{a}</td>
<td>13.66\textsuperscript{a}</td>
<td>11.30</td>
<td>0.038</td>
</tr>
<tr>
<td>Standing</td>
<td>50.63\textsuperscript{a}</td>
<td>45.91\textsuperscript{b}</td>
<td>45.26\textsuperscript{b}</td>
<td>10.85</td>
<td>0.006</td>
</tr>
</tbody>
</table>

\textsuperscript{a}SED, standard error of difference between means. \textsuperscript{b}Means in a row not having the same superscript are significantly different.
\textsuperscript{c}Means in a row not having the same superscript indicate a trend for a significant difference (P < 0.10).

References


Supported in part by Pork CRC Limited Australia.
Sow aggression in early gestation is decreased by greater space allowance in the first four days following mixing

E. C. Greenwood\textsuperscript{A,C}, K. J. Plush\textsuperscript{B}, W. H. E. J. van Wettere\textsuperscript{A} and P. E. Hughes\textsuperscript{B}

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Group housing of sows is preferable to the use of stalls as it allows for higher social interaction and movement (Seguin et al. 2006). One disadvantage of group housing is that the mixing of sows, and therefore aggression, is unavoidable. Aggression between domestic sows is highest when sows are first introduced to each other and hierarchies are formed. The aim of this study was to determine the effect of a mixing pen involving increased space allowance at the point of mixing followed by restricted space after hierarchy formation on sow aggression. It was hypothesised that aggression at mixing would be negatively correlated to space allowance, and that space restriction after hierarchy formation would result in no detrimental effects.

The experiment used 132 multiparous, Large White x Landrace sows. Following artificial insemination sows were mixed into groups of six. Australian standards state sows must be housed at 1.4 m\textsuperscript{2}/animal or greater but recent research suggests this figure is too low (Hemsworth et al. 2013), and so this experiment allowed 2 m\textsuperscript{2}/sow (LOW), 4 m\textsuperscript{2}/sow (MED) or 6 m\textsuperscript{2}/sow (HIGH). The sows remained in these pens until d 4 after mixing, at which point all pens were equalised to 2 m\textsuperscript{2}/sow. Behaviours (6 h, including eating, fighting, displacements, rest and exploration) were measured on d 0, 1, 3 and 4 relative to mixing. Data were analysed using a linear mixed model (IBM SPSS, Version 20.0; USA) with sow identification fit as a random effect, and replicate, sow parity, day of measure and treatment as fixed effects and sow as the experimental unit. Data are expressed as least squares means ± SEM. Where transformation of data occurred, the non-transformed means have been presented in the text.

The LOW group sows had a greater fight number than HIGH sows on both d 0 and 1 after mixing (LOW = 6.1, MED = 4.1, HIGH = 3.0, \(P < 0.05\); Fig. 1). HIGH sows were involved in more fights than MED sows when the pens were decreased on d 4 (LOW = 1.9, MED = 1.7, HIGH = 2.5, \(P < 0.05\); Fig. 1). When the change in aggression from d 3 to d 4 (after pen size was standardized) was analysed, there were no treatment effects (\(P > 0.05\)).

In line with previous reports (Weng et al. 1998), results from this study support the notion that providing sows with large space allowances is an effective method to reduce aggression. A novel finding of the current investigation was that space can be reduced after hierarchy formation with little impact on the number of fights per sow. As space is often cited as a limiting resource on farms, this could be an attractive methodology for producers in order to limit the effects of aggression between sows at mixing.

Fig. 1. The effects of 2 m\textsuperscript{2}/sow (LOW □), 4 m\textsuperscript{2}/sow (MED ■) or 6 m\textsuperscript{2}/sow (HIGH ▪) in group-housed sows on fight number per day/sow (on d 4 treatments were standardised to 2 m\textsuperscript{2}/sow). Data are presented as log\textsubscript{10}-transformed means ± SEM; significant differences between treatments, within day, are highlighted using superscripts (\(^a, b\ P < 0.01\)).

References


Supported by Pork CRC Limited Australia and The University of Adelaide.
PAPER PREPARATION

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Insert full stop and a space between initials, a comma after each surname except between the last two where the word 'and' is used; (no full stop at end).

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Text
(a) Spelling: Use the Collins English Dictionary, 9th Australian Edition (2007). Use the -ize form; e.g., recognize, organize, organization, fertilization.

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(f) Comparisons between means: These can be made by using basic measures of variability. The most appropriate measure is usually the standard error of a difference between means (SED), or standard errors of the means (SE or SEM) when these vary between means. The standard deviation (SD) is more useful only when there is specific interest in the variability of individual values. Indicate which measure is being used when data are first presented but not subsequently; e.g., 53.8 ± 1.5 g/L (mean ± SE).

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Use the Word tabs to insert a table into the paper template. Single-spaced typing should be used.
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There should be a horizontal line (1/2 pt) at the top and bottom of the table and one separating the column headings from the data in the table, but there should be no vertical ruling between columns.

Use 1, 2, 3 etc., or a, b, c, etc., to identify footnotes. Footnotes are to be left aligned following the table. One blank line should be left above and below the table.

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Use the Word tabs and insert figures as a high resolution JPG picture – do not copy and paste. Pictures must be black and white print quality and of a size so that all aspects can be seen clearly.

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The legend is placed under the figure and should include a key to the symbols used; e.g.

**Fig. 1.** Villous height, crypt depth, DNA, protein, glutaminase activity and feed intake of piglets fed glutamine (●) and glycine (○) diets for 5 d after weaning (mean ± SEM). *Means with different superscripts differ significantly (P<0.05).

**References**

In the body of the text, references should be cited according to the following rules, and the ‘Reference’ style should be applied.

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A complete list of the references cited in the text must be arranged alphabetically at the end of the text and preceded by the heading. Enter one hard return (i.e., begin on next line - no blank line).

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• Is the methodology adequately described;
• If required, is the statistical analyses appropriate;
• Are the results clearly presented;
• In the case of an experiment, is it clear that the hypothesis is either supported or rejected;
• Tables and figures are satisfactory and necessary;
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