

# Location of Nursery Pigs in Relation to a Human Observer

## A.S. Leaflet R2732

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### Summary and Implications

The objective of this experiment was to determine pigs' location in their home pen in relation to an unknown female observer. A total of 79 pens housing 1,817 ~6 wk old mixed sexed nursery pigs were used. An approachability test defined by Fangman et al. (2010) was used. The length of the nursery pen was measured with the Adobe Photoshop ruler tool from the pen gate located directly behind the midpoint of the observer's back (defined as the dorsal medial point) to the opposite end of the pen 20 cm from the floor. A transparency was taped to the computer monitor and the home pen was divided into thirds and fourths. Pigs were then counted within the lines. A pig was considered in a section if both eyes and at least one complete ear were in front of the line. These results will be presented descriptively. Fewer pigs were in the section closest to the observer (6.4% vs. 2.7%; Figure 1) when the pen was divided into fourths. Pigs included in these closest sections to the observer were most likely to be classified as approaching. Regardless of how pens were divided up, more pigs were located in the furthest section away from the human observer (52.9 and 41.8% respectively; Figure 2). The observer noted portioning the pen into fourths provided greater pig location accuracy. For example when the pen was sectioned into thirds, a total of 15 pigs could not be clearly allocated to a section compared to only four pigs when the pen was divided into fourths. In conclusion dividing the pen into fewer sections resulted in a higher percentage of pigs being classified as approaching the observer, however the accuracy of being able to place pigs into sections was harder when the pen was divided into thirds.

### Introduction

Numerous external and internal factors can affect animals approachability to a human, for example their state of well-being, previous interactions with a human and stage of production. This approachability distance between an animal and the human has been called the "flight zone" and a general rule of thumb notes tamer = smaller flight zone.

There have been numerous tests used to determine the level of fear or conversely approachability behavior in a variety of farm species, for example open field test, human and novel and unfamiliar approach. The term "*willingness to approach*" (WTA) has been proposed to be a more positive alternative to fear. It has been demonstrated that the WTA is a tool that serves as a sensitive parameter for assessing vaccine reactivity in pigs. However, this tool may be able to serve as sensitive indicator when assessing pigs' approachability to an unknown human in their home pen. Therefore, the objective of this experiment was to determine pigs' location in their home pen in relation to an unknown female observer.

### Materials and Methods

**Animal care:** Animal care and husbandry protocols were overseen by the company veterinarian and farm manager. The protocol was based on the U.S. swine industry guidelines presented in the swine care handbook and the Pork Quality Assurance Plus™ (2010). The protocol for this experiment was approved by the Iowa State University Institutional Animal Care and Use Committee (#2-11-7080-S). The experiment was conducted on 8 March 2011 at a commercial nursery site situated 128.7 km (80 miles) SW of Ames, IA.

**Animals and location:** A total of 79 pens in two rooms (40 in room 1 and 39 in room 2) containing a total of 1,817, ~6 wk old mixed sexed nursery pigs, weighing ~25.4 kg were used. There were ~20 pigs/pen giving each pig 0.3 m<sup>2</sup>/pig.

**Diets, housing and husbandry:** The ceiling height in the nursery rooms were 2.6 m. Pens measured 1.8 m width x 3 m in length with steel dividers (81.3 cm height) between pens and one front steel gate at the front each nursery pen measured 91.4 cm height. Pens were situated with 10 pens on the right, 10 on the left and 20 in the center separated by two alleyways (76.2 cm wide). Feeders were located on the right or left side of the pen, depending on pen location and were 78.7 cm from the front gate. Feeders were circular with a radius of 55.9 cm and height of 81.4 cm (Osborne, Osborne, KS). Pigs has *ad libitum* access to a meal-grind diet (1510 kcal per kg metabolizable energy [ME] and 18.1% crude protein [CP] formulated to meet requirements (NRC, 1998). Diets were provided in a 5-hole feeder per pen with a feed capacity of 76.2 kg. Each pen contained one stainless steel nipple drinker (Suevia Haighes, Kircheim, Germany) on the opposite side of the feeder, except for end pens where the drinker was located on the side of the feeder farthest from the alleyway. Polygrate flooring (12.7 mm gauge slats; Faroex Ltd., Gimli, Manitoba, Canada) was utilized in all pens. Twenty fluorescent lights were turned

on at 7:00 am for daily chores and then were turned off around 16:00 pm. Two night lights were on 24-h a day. Rooms were automatically ventilated using either two pit fans (Osborne, Osborne, KS) with variable speed, 18 inlets and wall fans (Osborne, Osborne, KS) set at 5 CFMs/pig and contained two heaters (L.B. White, Onalaska, WI) per room set at 0.5 °C below set point. Average room temperature was 23.5°C. Caretakers observed all pigs twice daily.

**Approachability methodology:** The observer entered the pen and walked to the right corner of the pen. She immediately crouched down, extended and held still the left leather-gloved hand and began a stop watch, avoiding eye contact with the pigs for a 15-s period. At the conclusion of the 15-s, the observer raised her head and took a digital image using the wireless remote (Fangman et al., 2010).

**Sections:** The digital image was displayed onto a computer screen. The length of the nursery pen was measured with the Adobe Photoshop ruler tool from the pen gate located directly behind the midpoint of the observer’s back (defined as the dorsal medial point) to the opposite end of the pen 20 cm from the floor. A transparency was taped to the computer monitor and the home pen was divided into thirds and fourths. The total length of the pen was 220 cm.

**Table 1. Pig location by section.**

	Distance (cm [%])			
	<b>ONE</b>	73.3 (33)	146.7 (66)	220 (100)
<b>TWO</b>	55 (25)	110 (50)	165 (75)	220 (100)

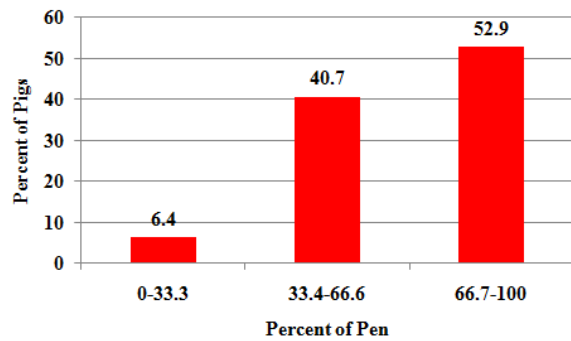
Pigs were then counted within the section lines. A pig was considered in a section if both eyes and at least one complete ear were in front of the line. These results will be presented descriptively.

**Results and Discussion**

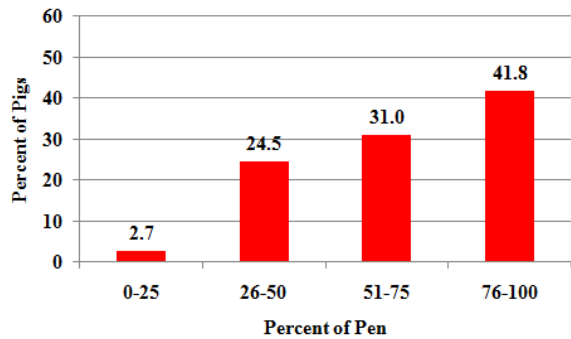
Fewer pigs were in the section closest to the observer (6.4% vs. 2.7 %; Figure 1) when the pen was divided into fourths. Pigs included in these closest sections to the observer were most likely to be classified as approaching. Regardless of how pens were divided up, more pigs were located in the furthest section away from the human

observer (52.9 and 41.8% respectively; Figure 2). The observer noted portioning the pen into fourths provided greater pig location accuracy. For example when the pen was sectioined into thirds, a toal of 15 pigs could not be clearly alloacted to a section compared to only four pigs when the pen was divided into fourths. In conclusion dividing the pen into fewer sections resulted in a higher percentage of pigs being classified as approaching the observer, however the accuracy of being able to place pigs into sections was harder when the pen was divided into thirds.

**Figure 1. Pig population percentages within sections (thirds) of the nursery pen.**



**Figure 2. Pig population percentages within sections (fourths) of the nursery pen.**



**Acknowledgments**

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