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Farm of origin may influence how pigs move through races and pens. Pigs which have never been Pigs moved out of their pens during fattening are more difficult to move at the slaughter plant. which refuse to move are more likely to become stressed. Stress is detrimental to meat quality. Experiment 1: Twenty-four 4.5 week old crossbred pigs were housed in either a simple or a complex environment. The simple environment consisted of 2 pigs in each of six 1.22m x 1.22m indoor pens. People never entered the pens. The complex environment consisted of 12 pigs together in one outdoor pen. An investigator entered the pen every day and alored with the bar of 2 pigs together in one outdoor pen. An investigator entered the pen every day and played with the pigs for 15 to 30 min. The pigswere given cloth strips, chains, stones, balls, newspapers, boxes and ropes. After the 9 week trial times to approach a strange man and a strange object were measured. Approach strange object: complex environment 49.8 sec., simple environment 83.5 sec.; approach strange man: complex environment 59.5 sec., simple environment 100.3 sec. Pigs from the simple environment to the simple environment for the simple environment environment for the simple environment envit environment environment environ sec., simple environment 100.3 sec. Pigs from the simple environment had longer approach times. Experiment 2: Pigs were reared under similar conditions as Experiment 1. Time to walk through a narrow white wood race (4.8m long, 1.2m high, 27cm wide at bottom, 38cm wide at top) towards a pig at the end of the race was measured. Number of pigs which walked through the race within 5 min: Trial 1, complex 10 out of 12, simple 2 out of 12. Trial 2, complex 10 out of 12, simple 4 out of 12. Mean times: Trial 1, complex 2.27 min., simple 4.56 min. Trial 2, complex 1.47 min., simple 4.19 min. Pigs from the simple environment were more reluctant to walk through the race. Experience reduced time to walk the race through. The results suggest that pigs might be trained to move more easily. Driving pigs out of the fattening pens 2 to 3 times during fattening may make them easier to move at the slaughter plant. People entering the pens occasionally may also be beneficial.

INTRODUCTION

The environment a pig is raised in can affect its reaction to handling. Observations in slaughter plants suggest the farm of origin influences how pigs behave during movement through races and parage Some groups of pigs are more difficult to move than others. Practical experience indicates that pigs which have never been moved out of their pens during fattening are more difficult to drive at the slaughter plant. Previous research indicates that pigs which have no experience with handling sometimes regard a loading ramp as an impassable obstacle (van Putten, 1981). Pigs which have been caised indoors in semi-darkness with minimal human contact were easily startled and difficult to load on a trailer compared to pigs raised outside (Warris et al, 1983). The outdoor pigs were easy to load because they had become accustomed to handling. van Putten (1981) has suggested that fattening pigs could be trained to help overcome handling stress. Ried and Mills (1962) and Kilgour (1976) state that livestock can be trained to accept irregularities in management and be preconditioned to stresses.

Pigs which balk and refuse to move are more likely to become excited and stressed just prior to slaughter. This is especially a problem in large slaughter plants which slaughter 500 to 1000 per hour. Excitement in the race immediately prior to stunning increases the incidence of PSE (Barton-Gade, 1984 and Barton-Gade personal communication, 1984). One purpose of our experiments was to objectively determine how rearing environment affects pig behaviors which are relevant to nandling. The differences between the two environments was made extreme to make it easier to measure a differences in the pig's behavior. In one environment, the pigs had a large amount of contact with people and novel objects. The other environment was barren and there was minimal contact with people.

IETHODS

Experiment 1: Twenty-four 4.5 week old crossbred pigs from 5 litters were placed in either a simple or c complex environment. The simple environment (Figure 1) consisted of two pigs in each of six i.2.2 by 1.22m pens with plastic coated expanded metal floors. The pigs were not handled except for filling the self feeders daily and cleaning the pens with a hose every third day. People never entered the pens. The pens were inside a closed controlled environment house with fluorescent fighting and no windows. The lights were on 24 hours per day. The complex environment consisted of 2 pigs together in one outdoor pen. The pen had a concrete floor and an adjoining house bedded with traw. A person entered this pen every day and petted the pigs for 15 to 30 minutes (Figure 2).

1 - 10

pigs were also given toys such as cloth strips, chains, stones, balls, newspapers, boxes and ropes. It the end of the 9 week trial, times to approach a strange man and a novel object were measured in a small pen indoors. The novel object was a new, unused red feeder stood on its end. Approach times were measured individually for each animal after it was placed in the test pen. Pigs which failed to touch the strange man or the novel object within 5 minutes were removed from the test pen. Their time was recorded at 5 minutes.

Experiment 2: Another group of pigs were reared under conditions similar to Experiment 1. At the end of the experimental rearing period, time to walk through a narrow wooden race painted white was measured. The race had solid plywood sides and it measured 4.8m long, 1.2m high, 27cm wide at the bottom and 38cm wide at the top. Figure 3 illustrates a pig's eye view of the race. Time to walk through the race to a decoy pig penned at the other end of the race was measured in two trials in quick succession. Each pig was placed in a small pen at the end of the race and allowed to walk through the race voluntarily without being prodded or pushed. The small pen at the end of the race was just big enough for the pig to turn around. We decided not to push or prod the pigs in the race because it is very difficult to prod or push a pig in an objective manner. The race floor was Painted gray and it contained three obstacles. They were a 5cm wide light beam, a 7.5cm wide Perforated metal strip, and a 2cm by 3.7cm wood board. The race was located indoors in a windowless building and it was illuminated with incandescent lamps. Pigs which failed to walk through the race within 5 minutes were removed. Their time was recorded at 5 minutes.

RESULTS

Experiment 1: Pigs reared in the simple environment had longer approach times than pigs raised in the complex environment. (P<.01). There were also litter differences in approach times. One litter of pigs was more reluctant to approach both the strange man and the novel object regardless of tearing. rearing environment. The mean times are in Table 1.

lable 1	F	pproach	Times
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C:	Approach Strange Man	Approach Novel Object
Simple Environment	100.3 seconds	83.5 seconds
Complex Environment	59.5 seconds	49.8 seconds

Experiment 2: Pigs reared in the simple environment were more reluctant to walk through the race in both trials. After experiencing the race once, the pigs from both rearing environments became more willing to walk through during the second trial. The mean times are in Table 2.

Table 2 Time to Walk Through a Race

Sin	Trial 1	Trial 2
Simple Environment	4.56 minutes	4.13 minutes
Complex Environment	2.27 minutes	1.47 minutes

The majority of the pigs reared in the simple environment refused to walk through the race within 5 minutes. In Trial 1, only 2 out of 12 pigs reared in the simple environment valked through the race, but 10 out of the 12 pigs reared in the complex environment walked through the race. In Trial 2, 4 out of the 12 pigs reared in the complex environment walked through the fits from the complex environment walked through, and 10 out of 12 pigs from the complex to environment walked through. The same two pigs which had refused on the previous trial refused to walk through the race during the second trial.

DISCUSSION

The large amount of handling used in our experiment would not be practical on a large commerical farm farm, but the results suggest that pigs might be trained to move more easily during handling. Further research is needed. Perhaps driving pigs out of their pens two or three times during the fatter. Tarther research is needed. Perhaps driving pigs out of their pens two or three times during the fattening period would make them easier to move at the slaughter plant. People entering the pens at least once a week to get the pigs accustomed to people may also be beneficial. On farms where people never enter the pens, the pigs will often become agitated and excited when a person goes in the pen.

There is probably an optimum level of handling which would be both beneficial and practical. If the pigs are probably an optimum level of handling which would be both beneficial and practical. If the pigs are petted too much they may become difficult to drive because they will want to follow the person petted too much they may become difficult to drive because they will want to follow the berson. If an animal is never exposed to novelty, then it is more likely to become stressed when it is for is forced into a highly novel situation such as a slaughter plant lairage. Possibly playing a tape of truck of truck sounds, people talking and machinery noises would help get the pigs accustomed to some of the sounds they will hear in the truck and at the slaughter plant. The more familiar a situation is the less likely the animals will be stressed (Dantzer, 1983 personal communication).

41

Observations with sheep indicated that it is possible to train an animal to completely accept a handling procedure which would usually cause the animal to become stressed. Livestock usually become agitated and excited when they are restrained in a squeeze chute. We were able to train sheep to voluntarily enter a squeeze chute and be tilted to a horizontal position for a grain reward. The more experience the sheep had with the squeeze chute the less fear they had of it. Some animals willingly entered the squeeze chute and were squeezed and tilted eight times in a row. Some animals jumped on the gate that led to the squeeze chute because they wanted to get in.

When an animal is being trained to a handling procedure it is important that it remains calm and pain is not inflicted. If the animal becomes frightened during training it may become increasingly more stressed each time it is handled. Practical experience with cattle indicates that animals with previous rough handling experiences become more excited during subsequent handling than cattle which have had previous gentle handling experiences.

It is especially important to reduce stress immediately prior to stunning to help prevent PSE (Barton-Gade, 1984 personal communication. In conclusion, it may be possible to develop simple practical training procedures which will help reduce agitation and excitement shortly prior to stunning at the slaughter plant. This may help reduce PSE.



Figure 1: Simple environment

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Figure 2: Pigs being petted in the complex environment

Figure 3: Race used in Experiment 2.

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