

Handling Problems Caused by Excitable Pigs

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SUMMARY: Increasing problems with extremely excitable pigs have been observed. Observations were made in 14 pork slaughter plants located in the U.S.A., Canada, Australia and Denmark. The following behavioral problems were observed in some groups of pigs: 1) hyperactivity and squeal when touched, 2) extreme flocking instinct and 3) constant backing up in the single file race. Excessive excitability is caused by an interaction of three factors: genetics, flooring type and lack of environmental stimulation. Excitable, difficult-to-handle pigs are usually lean or have heavy muscling. A lack of environmental stimulation or fattening to final slaughter weight on metal or plastic floors also increases handling problems.

INTRODUCTION: During the last four years, there have been increasing problems with extremely excitable pigs. These pigs are extremely difficult to handle at the slaughter plant. This causes serious animal welfare problems and high levels of PSE. The animals balk, pile up and refuse to enter the single file race to the stunner. Quiet, gentle handling of these pigs is almost impossible. The purpose of this survey is to determine the incidence of pigs which are difficult to drive into races. Observations were also made to find the factors which make pigs difficult to handle.

METHODS: Observations were made in 14 pork slaughter plants located in the U.S.A., Canada, Australia, Denmark and Germany. Eight pig farms were visited in the U.S.A., Canada and Australia. At the slaughter plants, the pigs were observed while they were being unloaded from trucks, driven in and out of pens and driven up the single file race to the stunner. On one farm, pigs were observed during truck loading and on all farms, their reaction to being startled was tested by touching the animals.

RESULTS: In the U.S.A., the greatest concentration of hard-to-handle pigs was on the east coast. In Pennsylvania and Virginia, approximately 20 to 30% of the pigs were very difficult to drive. In Iowa, Illinois and Missouri, the incidence of excitable, hard-to-handle pigs dropped to 5%. Excitable pigs cause losses to the industry because they have higher levels of PSE. The worst groups of difficult-to-handle pigs were observed in Australia and central Canada. Over 75% of these pigs were impossible to drive quietly.

The following behavioral problems were observed: 1) hyper-reactivity and squeal when touched, 2) extreme flocking instinct (one pig will not separate from the group and move up in the race) and 3) constant backup up in the single file race to the stunner. The excitable, difficult-to-handle pig problem is caused by an interaction between three factors: genetics, type of flooring and lack of environmental stimulation. Tables 1 and 2 summarize the factors associated with both easy and difficult driving. At seven slaughter plants, the incidence of excitable, difficult-to-drive pigs was 5% or less. In the other seven plants, the incidence of excitable pigs was 20% to 30%. Table 3 illustrates the behavior of different breeds housed on the same farm. Observations at both the slaughter plants and at the farms indicated that crossbred pigs with evidence of Duroc genetics were calmer and easier to drive.

The two traits that were most likely to be associated with hard-to-handle pigs were metal or wood floors in the fattening pens and no visible signs of Duroc breeding. Pigs fattened on wood or metal floors are very balky. The only plant that had excessive excitability in pigs with visible signs of Duroc genetics contained pigs that were raised on wood slats in total darkness. Pigs farrowed by Yorkshire x Landrace sows and sired by Hampshire boars were more excitable than pigs farrowed by Yorkshire x Landrace sows and Hampshire x Duroc boars. Observations on three of the farms indicated that a small amount of Duroc genetics made the animals calmer. On one farm, Yorkshire x Landrace sows were more easily startled than PIC white sows that had some signs of Duroc coloration. At two other farms, an absence of Duroc genetics resulted in more nervous, excitable pigs. At these two farms, breeding with and without Durocs in the cross breeding program was used. The mother line at both farms was Landrace x Yorkshire or Landrace x Large White. The use of purebred Hampshire boars on these white sows resulted in more excitable offspring than the use of sires that had Duroc genetics. The most excitable pigs were farrowed by Landrace x Yorkshire sows and sired by purebred Hampshire boars.

DISCUSSION: One must be careful not to become too critical of a particular breed. The characteristics of a breed can change, depending on selection. For example, Halothane positive Yorkshire x Landrace pigs were more active in the fattening pens than Halothane negative Yorkshire x Landrace pigs (ROBERT and DALLAIRE, 1986). In the German plant, there was a definite difference in the behavior of German Landrace and Dutch Landrace. The heavily muscled German Landrace was more excitable. The survey showed a definite tendency for pigs selected for leanness to be more excitable and have a greater tendency to back up and turn back. Some family lines of pigs of the same breed are more excitable than others (GRANDIN, 1989a). Plant U.S.A. 2 slaughtered pigs purchased from a commercial breeding company. They were farrowed by a white sow line and a Hampshire cross boar line. None of the parents or their offspring had any signs of Duroc coloration. Some of the pigs were extremely excitable and difficult to drive. Other pigs from the same breeding company were relatively calm. The exact genetic makeup of these pigs is a trade secret, but several herdsmen at the breeding farms informed me that some of the animals became very agitated during weighing. Other animals from the same farm remained calm during weighing. There is a tremendous need to select pigs for temperament. Breeding stock with a nervous, excitable disposition should be culled. Many of the pigs originating from this breeding company had high levels of PSE due to agitation in the stunning race. The high incidence of PSE was not related to PSS because all of the breeding stock was negative on the Halothane test. Herdsmen at the commercial breeding farm also reported that the white sow line pigs balked more during truck loading than the Hampshire cross boar line pigs. MARSHAL-NIMIS and REMPEL (1986) found that Yorkshire moved more slowly during loading than Pietrains.

A lack of environmental stimulation also contributes to the excitability problem. Research by GRANDIN (1989b) and GRANDIN et al. (1986) indicated that providing fattening pigs with cloth or rubber hose toys will produce a calmer animal. The pigs used in these experiments were sired by Hampshire boars and farrowed by Landrace sows. The pigs in plant Canada 1 were fattened under extreme sensory deprivation conditions. They were kept in total darkness in the same pen from weaning to slaughter weight. Rattling the gate of the lairage pen resulted in an excessive startle reaction and extreme agitation. WARRISS et al. (1983) also found that pigs reared in semi-darkness were more easily startled and harder to load onto a truck compared to pigs reared outside. Previous research on dogs and rats indicates that restriction of sensory input makes the nervous system more reactive to stimulation. Pairs of young dogs kept in barren kennels become more excitable (MELZACK, 1969). Trimming the whiskers off baby rats causes the areas of the brain that receive sensory input to become more excitable (SIMONS and LAND, 1987). The possibility of nutritional factors having an effect on excitability also needs to be explored. STITT and JOHNSON (1990) state that alpha linolenic acid feed additives made sows calmer and easier to handle.

CONCLUSIONS: The incidence of excitable, difficult-to-handle pigs is increasing. The pigs that were hardest to drive up the stunning race were usually crossbred with no visible evidence of Duroc genetics. There is a tremendous need to select pigs for a calm temperament. Indiscriminant selection for leanness and heavy muscling tends to increase nervousness and excitability. Observations on farms where pigs were housed under identical housing and husbandry conditions indicated that genetics is a major factor in the cause of excitable pigs. A lack of environmental stimulation and the use of metal, wood or plastic floors during fattening also increased handling problems. Sensory deprivation and poor flooring tend to have a greater detrimental effect on excitable lines of pigs. Pig producers must address the excitable pig problem to avoid serious welfare and pork quality problems.

Table 1. Slaughter plants with excitable pigs.

Plant	Housing	Flooring	Breed	Behavior Problem
USA 1	confinement C ^a	aluminum	white X ^c	turn back and back up
USA 2	confinement 0 ^b	concrete	white X	excitable, turn back
USA 3	confinement 0	aluminum	multi ^d	balky
Canada 1	confinement C	wood slat	white XD ^e	easily startled
Canada 2	confinement C	concrete	white X	squeal in the lairage pens
Germany	confinement C	concrete	German Landrace	excitable
Australia	confinement 0	aluminum	white X	turn back, back up, squeal in lairage pens

^a Majority of pigs fattened in a closed, fan-ventilated building.

^b Majority of pigs fattened in a building with open sides.

^c Crossbred pigs of mainly white coloration with no visible Duroc coloration.

^d Multicolored pigs with some animals with visible Duroc coloration.

^e Crossbred pigs, mainly white coloration with visible Duroc coloration.

Table 2. Slaughter plants with calm pigs.

Plant	Housing	Flooring	Breed	Behavior
USA 1	confinement C	concrete	multi	calm, drive easily
USA 2	confinement C	concrete	multi	calm, drive easily
USA 3	confinement 0	concrete	multi	calm, drive easily
USA 4	outdoors	dirt	multi	calm, drive easily
USA 5	confinement 0	concrete	multi	calm, drive easily
Denmark	confinement	concrete with some straw	white XD	calm, drive easily
Canada	confinement C	concrete	white XD	calm, drive easily

Table 3. Excitability of different pig crossbreeds reared on the same farm.

Pig Group	Breed	Behavior
Farm 1	Slaughter weight pigs produced by Hampshire boars bred to Yorkshire x Landrace sows	excitable, balk, back out of loading ramp and turn back
Farm 1	Slaughter weight pigs Hampshire x Landrace x Yorkshire x Duroc	easy to drive up loading ramp
Farm 2	Yorkshire x Landrace sows	excitable, startle easily
Farm 2	PIC White sows with some Duroc coloration	calm, don't startle easily
Farm 3	Large White x Landrace x Hampshire Slaughter weight pigs	excitable, turn back in stunning race
Farm 3	Large White x Landrace x Hampshire x Duroc Slaughter weight pigs	calmer than groups without Duroc

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