

1:5 Liquid smoke aroma for smell masking give reduced fighting and stress among slaughter pigs.

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Introduction.

The incidence of stress meat in pork is giving reduced pay-back to slaughter pig producers around the world. Effective methods for reducing this problem are of great value. It is claimed that there are methods for smell masking in use for piglets. The authors had the idea that "meat related" materials like spices and smoke aromas should be tested for effectiveness.

Material and methods.

Liquid smoke aroma is easily available and a company was asked to fill the liquid smoke aroma for these tests into aerosol cans each containing 250 milliliters.

The liquid smoke aroma in use in sausages costs Norwegian kroner 65,- per liter. This corresponds to about 90 american cents per liter giving a total cost of 5 cent pr. pig. An even cheaper liquid smoke condensate might be used.

In these tests two pig transport trucks were used. One half of the pigs from one farm were loaded into one of the trucks and sprayed with a cheap liquid smoke aroma. The other half of the pigs from the same farm were transported untreated in the other truck. The live weights of the pigs were about 105 kilos.

The transport distances were almost the same, namely 30-50 kilometers for all pigs. The total loading-, transport- and unloading time was about 4 hours.

The main part of the pigs were rested overnight for about 15 hours in the slaughterhouse stable. The behaviour of the pigs was registered visually.

The temperatures in the trucks during the tests were during the summer: +10°C to +24°C and during the winter: +3°C to +12°C. The outdoor temperatures were during the summer: +8°C to +14°C and during the winter: 0°C to -10°C.

The pigs were electrically stunned for as long as 12 seconds by 240 volts 50 herz sinus voltage and then immediately shackled and bled. The pH-values were measured in the Longissimus muscle 30 minutes as well as 24 hours post-mortem. In each group were 250 pigs. Altogether 500 pigs were included in these tests.

Results and discussion.

From the curves it may be seen that there is a difference in the pH₃₀ in the carcasses from the pigs being sprayed with liquid smoke before slaughter and the pH₃₀ in carcasses from those pigs not being sprayed. We found that more carcasses in the unsprayed groups had a fast pH-drop to a value below 5,9.

If pH-value 5,9 at 30 minutes post-mortem is used as a "limit" 7,0% of the pigs in the group being sprayed showed "PSE-quality". In the reference group 15,0% of the carcasses showed "PSE-quality".

The very simple method used in our tests for detecting "PSE-quality" might be discussed. It is known that also in DFD-carcasses the initial calcium induced pH-drop theoretically is faster than in normal carcasses. (Hamm 84). In these tests we found however no carcasses showing DFD-quality 24 hours post-mortem.

More research should be carried out in order to see the more exact pattern of the pH-curves in PSE- and DFD-carcasses in the first minutes post-mortem. (Honikel 84). (In another paper being presented at this meeting, we show such pH-curves).

An interesting important finding during these tests was that the sprayed pigs were more calm and did fight less than the unsprayed.

The people handling the pigs in the slaughter stable did not like the smoke flavour which was smelt when, in some of the tests, the smoke aroma was applied on the pigs in the slaughterhouse stable. When used on the farms or in the trucks during transport, the smell in the slaughter stables were less irritating.

Final remarks and conclusion.

The main idea was to mask the aroma from the pigs and thereby making it difficult to smell the difference between "known and unknown" pigs. These tests have shown that it is possible to mask the different smells from slaughter pigs from different farms and pens by using a cheap liquid smoke product. Other aromas being less irritating to the people handling the animals might be used in the future. An automatic liquid aroma spray system might also be installed in the pig transport trucks making the spraying operation easier. This might be combined with the cold water showers which are already installed and found to be very effective for reducing stress and deaths among pigs, especially in the summer, in norwegian pig transport trucks.

References:

- Hamm, R. personal communication 1984.
Honikel, K.O., personal communication 1984.

pH-VALUES IN THE ADDUCTOR MUSCLES
30 MINUTES POST-MORTEM.

