

TRANSPORT OF ANIMALS INTENDED FOR BREEDING, PRODUCTION AND SLAUGHTER

A Seminar in the CEC Programme of
Coordination of Research on Animal Welfare,
organised by R. Moss, and held in
Brussels, 7-8 July, 1981

Sponsored by the Commission of the
European Communities, Directorate-General
for Agriculture, Coordination of Agricultural Research

Edited by

R. Moss

*Ministry of Agriculture, Fisheries and Food,
London, United Kingdom*

81 064



1982

MARTINUS NIJHOFF PUBLISHERS

THE HAGUE / BOSTON / LONDON

for

THE COMMISSION OF THE EUROPEAN COMMUNITIES

AIMS

It would not be realistic to expect pig farmers to train their fattening pigs in order to overcome transport stress, although it is our experience that even a bit of exercise makes a large difference. If we cannot minimise the problems by training pigs to react properly, we just have to act the other way around and remove hindrances or at least diminish them. By doing this we have no less than four advantages.

- 1 The welfare of the pigs for which we are responsible is improved.
- 2 Loading is less laborious for the men involved.
- 3 Slaughter pigs have to endure less stress, which decreases the percentage of PSE meat.
- 4 There is little need for the use of tranquillisers. This saves money and adds to meat quality, because of the absence of residues. The residues of tranquillisers remain in the body for at least 24 h.

EXPERIMENTS AND EXPERIENCES

Tagging

In order to recognise pigs at the slaughterhouse they are usually given an eartag by the commission agent. In many countries the lorry driver is held responsible for the number of pigs he has loaded and for their welfare during transport. This is only possible if the animals can be traced. However, this procedure means that it is in the interest of the driver not to fix the eartags until immediately before transport and in his presence. In practice tagging is one of the duties of the driver.

Very often not all the pigs in one pen are ready for slaughter on the same day, so some of them are tagged and others are not. Thus tagging means a lot of chasing around and causes much commotion among the pigs, especially among those in that particular pen. It is much better to postpone ear tagging until the pigs are driven into a special delivery pen, from which they can directly climb the loading bridge. This delivery pen should be located at such a point where it is

easily accessible for the lorry, and where it can collect pigs from several passageways. This special pen should preferably be situated inside the building. If not, pigs might hesitate to go into the cold air during winter. Being tagged in this special pen is not nearly as stressful for a pig as being tagged in its own pen. They seem to be overwhelmed by impressions of all kinds once they have reached the delivery pen, and hardly take notice of this extra pain. There is no need for chasing in this pen, because such pens tend to be overcrowded with pigs pressed firmly together.

By acting as has been described the pigs can be moved quietly out of their fattening pen into some corridor. The longer the pigs can be prevented from panicking, the more easily the whole operation proceeds. Excited animals are very difficult to handle.

If the lorry is equipped with a loading bridge operating as an elevator and if this elevator is well fenced in, pigs can be tagged on the elevator itself instead of in a special pen. However, one needs this pen anyway to collect the animals which are driven to the lorry.

Exit out of the fattening pen

Every pig pen, fattening pens included, should have a well-functioning door, leading to the feeding passage or via dung passages to some corridor. This is necessary for removing sick animals, but also for delivery purposes. This door should be situated in one of the corners of the pen and be opened outwards. This allows one man to remove all the pigs or only some of them, with the help of only a small wooden screen. It is clear that there should be no obstacle such as a trough in this opening. In that case farmers tend to use electric prodders in the pen already. Sometimes the doors of a pen have become so rusty, that they no longer function properly. It even happens, that slaughter pigs are lifted out of the pen by two men. This means hard labour and has a detrimental effect on the pig, because the men do not put the heavy pig back on the floor again, but just drop it outside the pen.

The floor has to be stable

A pig is very reluctant to step on an unknown surface, which seems to be not quite stable. A wobbling plank, tile or segment with slats can be a cause of stagnation. Grids and unfamiliar slats have the same effect.

Keeping together

There is one thing a pig in distress always tries to maintain. This is contact with its penmates or else with any other pig. If possible they stay in touch with each other, but at least they remain in sight. This is one of the reasons why it is difficult to drive pigs around sharp corners. This also causes the problem in that pigs want to slip through the same small opening at the same moment, and get stuck.

We once constructed a simulator for analysing negative influences on fluent handling of pigs outside the pen (Van Putten and Elshof, 1978). We drove four inexperienced pigs from the same pen through a corridor with several obstacles which we wanted to compare. One pig had apparatus for radio-telemetric electrocardiography strapped on its back. The other three served as companions only. As long as these four animals could go on as a group and had ample room, nothing was wrong. However as soon as the passage narrowed (funnel-shape) so that only one pig at a time could pass through they reacted in such a way that all four tried to struggle through at the same moment and got stuck up and under each other. Their heartrate became as high as that of pigs climbing a low loading bridge (angle 30°, height 122 cm). Dividing the original corridor of 180 cm into three narrow passages of 60 cm each had a similar effect: all the pigs wanted to slip through the same opening at the same time, and again this obviously was as much a stress as a low loading bridge.

Doorways

Designers of farm buildings know that doorways have to be broad enough to let a feeding wagon pass. They do not realise, because nobody has ever told them, that doors should

not restrict the width of a passage at all. It should be possible to drive a group of pigs through a doorway without meeting any hindrance or obstacle. Therefore doors should open outwards or, if necessary, to both sides.

The influence of light

Pigs are careful in entering a strange room. If this area is relatively dark, they hesitate. We observed 38 groups of 4 pigs entering an unfamiliar bright room and the same pigs entering an unknown relatively dark room (Van Putten and Elshof, 1978). In about 50% of the observations the dark room came first. Entering the dark room took 0.34 (\pm 0.13) min, entering the brightly lit room only 0.12 (\pm 0.06) min. The difference is statistically significant ($P < 0.001$).

In practice one can make good use of the result of this test. As loading mostly takes place very early in the morning while it is still dark, the influence of illuminating the passage-ways and corridors can be great. Thus the light switches should be within reach of the drover so as to enable him to switch off nearly every lamp where the pigs are and at the same time switch on all the lights at the point to which the pigs are supposed to go. By repeating this procedure, the drover (with his wooden screen) can direct the stream of pigs easily. It is clear that sideways or possible escape routes have to be closed beforehand with doors or with temporary fences. It will be equally clear that the delivery pen also has to be brightly illuminated.

Loading itself

If a lifting platform is available this facilitates loading and unloading no matter whether to and from upper loads or to and from lower loads, both for men and animals. If not, there is no reason to do it the hard way.

As pointed out before, it might well be true that pigs without proper experience do not regard a loading bridge as accessible. For the lower load it is easy to avoid a loading bridge by situating the delivery pen on a platform at the same

height as the floor of the lorry. In that case moving pigs from this pen into the lower compartment of the lorry will cause no problem, provided there are extra lamps in the lorry and they are used properly.

However, if no loading platform is available and in some cases pigs have to be moved from a loading platform up onto the upper load, it is made easier by remembering another experiment which has been carried out.

The angle of the loading bridge

Again with radio-telemetric electrocardiography we measured (Van Putten and Elshof, 1978) the heart rate of one out of four inexperienced slaughter pigs. In this way we recorded the heart rate of 4 groups of about 20 pigs, ascending a loading bridge that led to a platform on a level of 122 cm above the floor (the height of the lower loading floor of a lorry). We used loading bridges with various lengths, making angles of 30° (as usual in practice), 25°, 20° and 15° with the floor.

TABLE 1

HEART RATE OF PIGS DIRECTLY AFTER CLIMBING A LOADING BRIDGE UP TO 122 cm. (THE ANGLES OF THE LOADING BRIDGES ARE DIFFERENT). EACH ANIMAL WAS ACCOMPANIED BY THREE OTHER PIGS (VAN PUTTEN AND ELSHOF, 1978).

Angle of loading bridge (deg.)	Number of animals	Heart rate (% of basic value)	Difference (progressive)
30	21	202 ± 23	25
25	20	177 ± 16	25**
20	19	160 ± 17	17*
15	20	139 ± 19	21**

* $p < 0.01$

** $p < 0.001$

The relation between heart rate and the angle of the loading bridge appears to be linear.

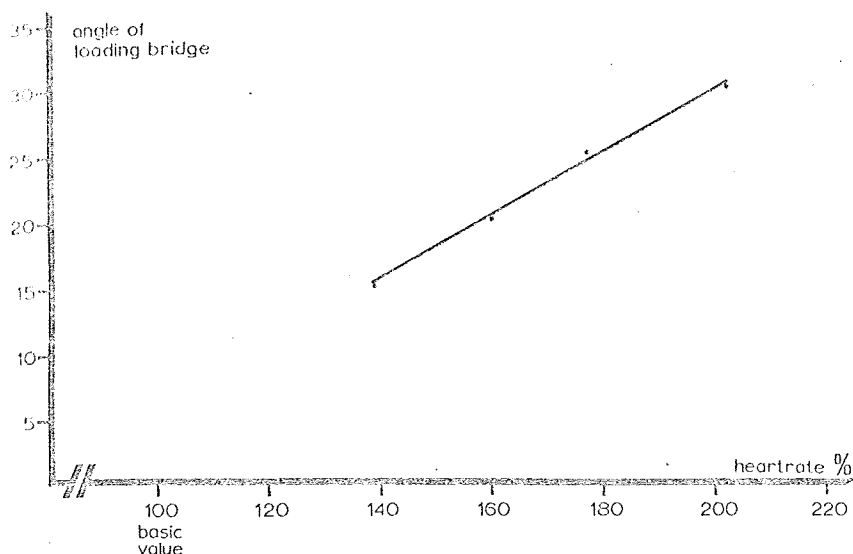


Fig. 1. The heart rate (as a percentage of the basic value) of pigs, directly after having climbed a loading bridge of 15°, 20°, 25° or 30° (Van Putten and Elshof, 1978).

The conclusion is obvious. If pigs have to climb into a lorry, a loading bridge should be provided which makes an angle of not more than 15° with the floor. This does make the bridge twice as long as the steep one with 30°. This long bridge (420 cm) can no longer be part of the transporting lorry, but should belong to the normal equipment of a pig fattening farm. Of course pigs should be prevented from falling down from this bridge by sidewalls. For reasons which have already been pointed out, this loading bridge should allow two or three pigs to mount together.

These provisions, combined with a long loading bridge, make use rather heavy. To keep this device mobile, it can be mounted on wheels, like aeroplane steps.

Leg weakness

If locomotion is painful, which may be the case according to the publications of Penny et al. (1963) and Prange (1972) in about 50% of all fattening pigs, all our care to get them on the lorry in good shape is more or less in vain. Every painful step is another stress for that particular animal. As

long as we accept this situation against better judgement, there is only one way to transport such pigs without ignoring their welfare. In that situation we have to enlarge the feeding passages in order to be able to put a transport container right in front of the pen. Then we load only pigs from the same pen in one container in which there is room for about five pigs, and leave them in this container during loading, transport, lairage and internal transport in the slaughterhouse until they arrive at the restrainer. Container transport is expensive, but we have the technical skill to do it that way, as experiments (Van Putten and Elshof, 1978) have proved. As long as we maintain housing systems in which pigs have great problems with their locomotive systems, these animals are entitled to be transported in containers without being forced to walk on their hurting legs.

We should also make an exception for all pigs which cannot stand on their hindquarters. Normal transport, as described in this paper, does not apply to these animals. Special transport is required, with very low carriers that can be rolled right into the fattening pen.

Electric prodders

Electric prodders are handy. However, they are mostly used on the wrong animals: those at the back, whilst those in front have stopped moving. This paper would remain incomplete without a warning to the effect that electric prodders do have the same stressful effect on pigs as descending a loading bridge or going through a funnel-shaped passage-way. Van Putten and Elshof (1978) tested these effects. They found that successive applications were even more harmful. The only conclusion can be, that if at all avoidable, they should not be used.

SUMMARY AND CONCLUSIONS

Transport does not start in the lorry. For pigs transport starts in the fattening pen. By postponing eartagging until pigs have arrived in a special delivery pen and by using a wooden screen instead of an electric prod, we can move pigs

quietly from their pen into the lorry. Of course there are some necessary provisions:

- the fattening pen should have a well-functioning door, leading to a passage-way;
- no obstacle such as a trough, for instance, should be allowed in this doorway;
- passage-ways should have no narrowing parts, nor sharp corners;
- floors should not have wobbling planks or other unstable parts;
- light effects should be used by darkening the place where the pigs are and lighting the area to which they are to be moved;
- the loading bridge should not be too steep, and preferably not exceed an angle of 15° with the floor.

If the locomotive system of pigs is not affected, we should be able to drive them onto the lorry without great detrimental effects on their well-being.

REFERENCES

- Council of Europe, 1972. European Convention for the Protection of Animals during International Transport. European Treaty. Series No. 65, Strasbourg.
- Kiley, M., 1977. Behavioural Problems of Farm Animals, Oriell Press Ltd. Stocksfield.
- Van Logtestijn, J.G., 1970. Veterinär-hygienische Aspekte der Stress-empfindlichkeit von Schlachtschweinen. Arch. Lebensmittelhyg., 3: 55-59.
- Penny, R.H.C., Osborn, A.D. and Wright, A.J., 1963. The causes and incidences of lameness in store and adult pigs. Vet. Rec., 75, 1223-1240.
- Prange, H., 1972. Gliedmassenerkrankungen bei Mastschweinen und der Einfluss unterschiedlicher Bodenausführungen. Monatsh. Vet.-Med., 27, 450-457.
- Van Putten, G. and Elshof, W.J., 1978. Observations on the effect of transport on the well-being and lean quality of slaughter pigs. An. Reg. Stud., 1, 247-271.
- Van Putten, G., 1981. Parameters for farm animal well-being, emphasizing the role of conflict-and vacuum behaviour. EAAP- Congress Zagreb, Comm. on Animal Management and Health.

DISCUSSION

G. von Mickwitz (*Federal Republic of Germany*) I would agree with you that pigs do not like to go into a dark room. They like to go towards the light. They never like to go towards the dark. That is very important.

G. van Putten (*The Netherlands*) They should of course not be blinded by too intense a light.

D.B. Stephens (*UK*) Dr. van Putten said that transport is sometimes painful, and I do not know quite what he means by that?

G. van Putten I mentioned leg weakness. Quite a number of pigs suffer from leg weakness and then walking, and therefore loading, is painful. The second time I mentioned it is when animals are under stress and are in such a condition that their meat will be PSE (Pale, Soft, Exudative) meat afterwards.

T.M. Leach (*UK*) You have made clear the snags connected with steep ramps which we ought to overcome. However, we are going to have steep ramps for some time to come. I wonder when you get pigs turning, on going up into the lorry, whether we might help this by having a narrow passageway so that the pigs go up in single file, following one another. Would this ease their entry?

G. van Putten It might help, but there should be no gap, or they will not go up at all. It is not so difficult to build a loading bridge on every large pig farm. A fattening house is expensive, and yet farmers may not think of building a loading bridge.

D. Lister (*UK*) I think we can all agree with the general recommendations given by Dr. van Putten on the ways of handling animals during slaughter, but it is very difficult to demonstrate that there are any substantial benefits from doing these kinds of things except in terms of those animals which are going to die or are going to produce PSE meat. How do you begin to demonstrate the benefits of using humane handling procedures?

G. van Putten That is an easy question to answer. I had to be very brief in my presentation, and I am glad that you have asked about this. It is much less laborious for the men if the stock is easy to handle. If you have to load pigs at 4 a.m. it is a bad job anyway, and if you have to push them around or lift them it makes the job even more unpleasant. It is easy to persuade the farmer of this and to make suitable arrangements.

D. Lister But then we are thinking of the welfare of the farm workers and not of the animals.

G. van Putten Yes, but your question was how to persuade farmers to do these things if I understood you correctly.

D. Lister I should like to see how you demonstrate the benefits of humane handling procedures. I agree that there are benefits to the farmer, but what about benefits to the pigs?

G. van Putten You have less PSE meat afterwards, but PSE meat is not such a problem for technologists, I am told. Then it is very difficult to persuade people of the benefits of looking after the welfare. I think it is not so much a benefit as a responsibility. It may be difficult, and I know that it is difficult to appeal to the responsibility of people, especially farmers, who are not aware of the condition of the pigs when they arrive at the slaughterhouse.

R. Dantzer (*France*) Firstly, I did agree with your description of the effects of tranquillisers. I would not argue about the fact that tranquillisers have to be used for transporting pigs but I agree that the decrease of cardiovascular and respiratory functions help the pig to withstand shock. This is mainly due to the cardiovascular changes.

My question concerns motion sickness. I have transported several hundred pigs and I have only noticed vomiting pigs two or three times. Do you know whether pigs are really sensitive to motion sickness?

G. van Putten They are, and especially so if they have been fed just before the journey.

R. Dantzer Yes, but there is another question which is then raised, and that is whether vomiting is a good criterion for the assessment of motion sickness in pigs? Do you know of any work on the systematic investigation of pigs' sensitivity to motion sickness using centrifugation, for example, or some other means? This is very important in terms of animal welfare.

G. van Putten I have seen pigs vomiting during transport in the lorry, especially when they had been fed, but I do not know of anybody who recorded motion sickness in any other ways.

