Improving animal welfare in pig slaughterhouses

How to reduce stress, suffering and ease handling

Eyes *on* Animals | Watching out for their welfare

Unloading area

- **Unloading pigs in small groups (5-6 pigs) is quickest .** Pigs are calmer in smaller groups and thus move more easily. When pigs move easily, human handlers will also be more calm with them. It is a win-win solution.

- **Ensure that the sides of the loading ramp are solid and high**, this prevents pigs from falling off the ramp and blocks the view of negative distractions in the surrounding environment that could make them fearful or hesitant.

Make the sides of the loading ramp high and solid

- **Place rubber or synthetic panels on the inside of the loading ramp to prevent metal to metal contact during unloading.** This prevents a lot of noise and enables the pigs to walk more easily off the tailgate. The sound-absorbing panels can be attached with screws to make sure they stay in place. See picture below of Compaxo slaughterhouse for an example:

Rubber panels to reduce noise

- **The steeper the slope, the more fearful the pigs are.** The slope of the tailgate should never exceed 15° and much better is when there is no gradient at all. The best is a long unloading platform that can be set, via a hydraulic system for example, at the different heights of the truck decks (see photos below) so pigs can walk straight off easily.


A loading platform that can be set at different heights (hydraulic)

- **Illuminate the place where the pigs are unloaded.** Pigs tend to walk more easily towards an illuminated area. Ensure that light does not shine directly into the face of the pigs because this inhibits their movement.

- **The floor of the (un)loading ramp and platform should be non-slip** to prevent pigs from slipping or injuring themselves. Use stair steps when there is a slope, even when it is a small slope.

Create non-slip flooring to prevent the pigs from slipping

- **Use the same flooring throughout the whole facility to prevent sudden changes in floor structure or colors.** Pigs are sensitive to contrasts in colours and are not very good at seeing depth and distance. Differences in flooring causes stress, hesitation behaviour and thus pile ups.

- **Remove strips, objects, drains or other distractions on the floor.** Pigs have poor vision – all sudden changes in flooring (colour, texture, reflection) can cause them to pile up or get stressed. Also make sure there are no gloves or other strange objects lying around on the floor.

Remove metal strips, drains or other distractions on the floor. They will cause pigs to balk.

- **Make sure there is a manual electric stunner present** near the unloading ramp, so that pigs that have become sick or injured during transport can be stunned immediately upon arrival and further suffering is prevented. This is also a legal requirement.

Electric tongs to stun injured or sick pigs immediately after arrival

- **The unloading area and lairage should be large enough to immediately unload and rest all the pigs.** From studies it is known pigs experience the most stress when left waiting on board stationary trucks.

Have enough loading platforms and a big lairage so all pigs can be immediately unloaded

Enabling immediate unloading prevents the risk of pigs being stuck on a truck where temperatures and humidity can easily build up and cause heatstress. It is also undesirable to leave pigs on board because when the truck stops moving pigs tend to wake up and start fighting. **Unfortunately Eyes on Animals continues to see long waiting lines in front of slaughterhouses** with pigs left on board trucks for hours. The pigs suffer severe heatstress and many break out into fights as a result.

Waiting lines are unacceptable because of risk of heat-stress and fighting

To prevent pigs from fighting and suffering from heat stress waiting queues should always be prevented! **If trucks nevertheless have to wait outside the slaughterhouse the following steps must be taken:**

- ✓ **Set up powerful and large industrial fans.** These should be adjustable in height and portable so they can be positioned beside each truck and the airflow can reach each deck.

Large and mobile ventilators.

This ventilator is too short, the airflow doesn't reach the top level.

✓ Build a sheltered area where the livestock trucks can park so that animals on board are kept in the shade until they can be unloaded. Make sure the colour of the roof of the shelter is white in order to reflect the sunlight. Install industrial mobile fans in this area for cooling purposes.

Parking areas with a roof and fans, providing shade and ventilatie

✓ Create a parking lane next to a row of trees which provide shade.

Long waiting line in sun with no shade

Trees provide shade at this parking zone

✓ Make sure the parking area has a light coloured floor. Whitewash asphalt to reflect sunlight and reduce heat inside the truck.

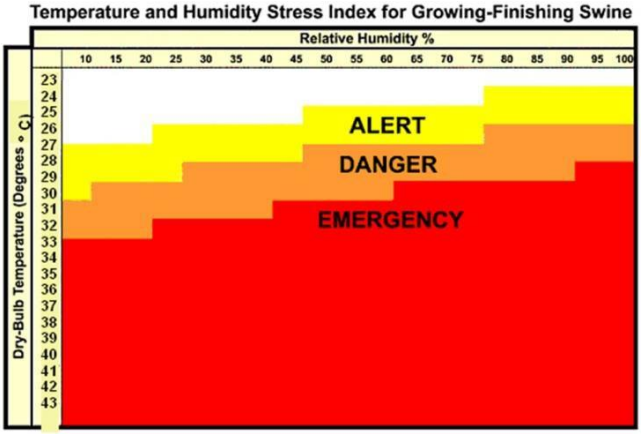
Whitewashed floor and roof to reflect sunlight at VION Boxtel

- ✓ Adjust the delivery times to the night time or early morning, avoiding the heat.

- ✓ Have a second look at the inbound schedule and make sure that there are not too many trucks arriving at the same time, especially not during hot and humid periods of the day.

- ✓ On hot days slaughter fewer pigs.

- ✓ When wetting the asphalt or trucks, realize that doing this is only beneficial for the pigs if it's being done with the use of an industrial ventilator. Wetting the asphalt or truck alone, will slow down the rising temperature but will also increase the humidity (creating a sauna-like environment). An increase in humidity on a hot day means that the pigs will have trouble cooling down and will suffer more.



Wetting asphalt is only beneficial for pigs if it is done with the use of an industrial ventilator.

Lairage

- The purpose of a lairage is to rest the pigs. **Make sure the lairage is indeed calm and comfortable enough to permit rest and let the pigs rest for 2-4 hours before slaughter.** This way pigs can recover from transport and get used to the environment. Do not leave pigs waiting much longer than 4 hours as they will than start fighting (to establish a hierarchical order).

  A comfortable lairage:
  * is not too cold and has no drafts

* has a dry and warm floor (use floor heating in winter and floor cooling in the summer)
* provides enough space for all pigs to comfortably lie down and move around
* is quiet: there are no loud or abrupt sounds, no yelling or people moving about abruptly
* has enough drinking nipples for all pigs to easily access

If pigs are still restless one hour after arrival it means that the lairage is not comfortable. A pig that feels safe and comfortable will lie down after a while. Find the reasons and improve the lairage!

- The size of the lairage should be adequate for the supply coming in with an additional “buffer” of at least 10% (in the case that more trucks than expected arrive at the same time or there is a break-down in the slaughterline). **From studies it is known pigs experience the most stress when trucks are stationary.** Unfortunately Eyes on Animals often sees waiting lines in front of slaughterhouses causing extreme (heat)stress and fighting in pigs. It is crucial slaughterhouses have a lairage that provides enough space for all pigs to be immediately unloaded**, even when many trucks arrive unexpectantly at the same time.**

Waiting lines are undesirable because of risk of heatstress and fighting.

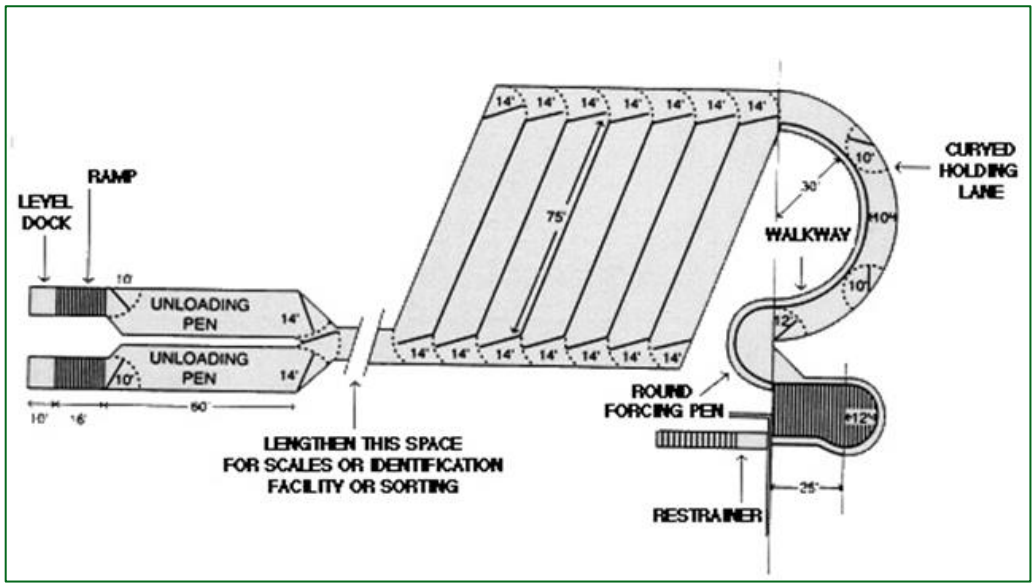
- **Move and house pigs in small socially stable groups. Do not lairage pigs from different truck-compartments together. Simply unload one truck-compartment (10-12 pigs) and house those pigs in one pen. If you mix pigs from different truck-compartments you will get** a lot of fighting because the pigs have to re-establish the **hierarchy order of the group.** Keep pigs in the same established groups at all times.

- Use **partitions** to keep different social groups separate from one another in the lairage. The manager of Meijer Export Station in the Netherlands is very content with the plastic fencing they have been using for the past 20 years. These fences can be built up, arranged and taken down as desired. Tönnies slaughterhouse in Germany also uses partitions to keep social groups separated in their lairage.

Lairages at Tönnies with many partitions

Plastic fencing at Harfsen Export Station

- Long and narrow pens where pigs can enter on one end and can exit on the other end (see drawing below) are ideal. Pigs like this design of pen because there are two long solid walls to lie against. Pigs prefer to lie against a solid-wall rather than in an open area.



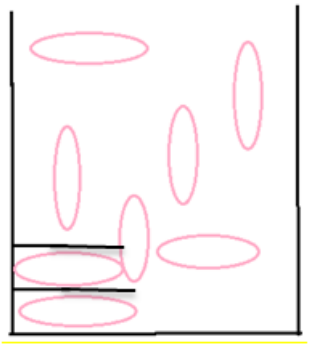
Temple Grandin's design showing oblong pens. This design was made for a cattle slaughterhouse but the left part (unloading and lairage pens) can also be applied to pig slaughterhouses.
© T.Grandin.

- Make sure that the **pens are not too full.** Pigs fight considerably less in pens that are kept 1/3 empty. Reduce the stocking density during a heat wave, allowing the pigs space to lay down comfortably and cool off.

This pen is too full

Loading density is good (but the fences should be closed)

- Different social groups should never be mixed, but when there is no other choice, make sure that the pigs can escape from each other. For example, include a separate narrow passageway within the lairage pen, where a pig that is being picked on can run into to escape the aggression (see drawing below). Creating ways for submissive pigs to escape reduces aggression and stress in the entire lairage area.



Idea how narrow passageways can be placed to make escape boxes

- Make sure there are enough water nipples so all pigs (also the submissive ones) are able to drink. Also check if the nipples are easy to access.

This nipple cannot be used easily as it is placed too closely to the pipe

- Scatter some **corn** kernels in the lairage pens before placing pigs in them can help reduce stress. The newly-arrived pigs will make a positive association with the new place and this will make them calmer. The pigs will start to investigate the corn and focus their attention on the floor. This will prevent both stress in the pigs caused by the novel environment and keep them busy, with less time to fight. A rope, wood shaving or straw will have the same effect.
  Watch a video of the effect sprinkling corn on the pen floor can have on pigs


Scattering corn kernels can create a positive distraction for pigs and will decrease fighting behaviour

- Fighting in pigs decreases when the pen has an odour of a boar in it or when there is a strong-smelling boar present in the lairage. Spray some boar taint in the lairages for that reason. Artificial boar taint can be bought (as it is used on farms to also brings sows into oestrus). See for example here: https://www.msschippers.com/ms-boar-odor-150-ml-4505625.html

- A small slaughterhouse located in the Netherlands sprinkles the back of the necks of the pigs with vinegar to reduce aggression. The manager says this also helps reduce fighting as they all smell the same.

- Pigs are sensitive to new or sudden **noises**. Pigs cannot localize the direction of sound as well as people. Pigs are able to hear sounds that humans cannot (ultrasound). To keep the pigs calm, minimizing all types of sound is important. Using plastic instead of metal gates and fencing is a way to reduce noise because **plastic gates** hardly make any sound when opening or closing.


Plastic fencing at export center Harsen and slaughterhouse Westfort reduce noise in the lairage

- Prevent high ceilings to reduce echo and noises and search for insulating materials to install in the ceiling that are sound-absorbing. Make sure that, when using hydraulic systems, hissing sounds are transported to a different room using a pipe. Make sure that activities that create a lot of noise, such as the truck wash area, are located as far away from the animal- area as possible.

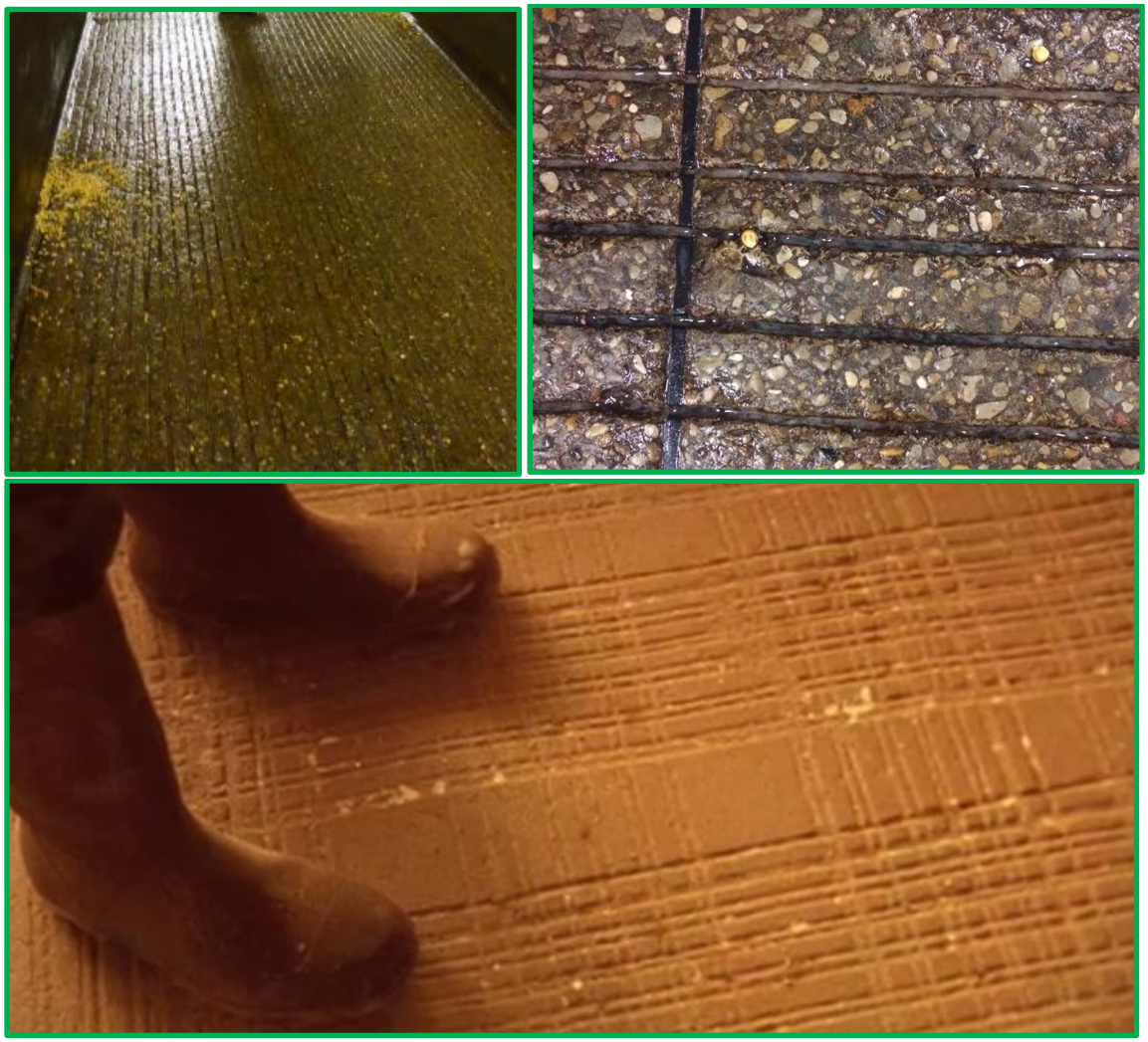
Sound absorbing design and material of ceilings

- Research shows that melodious music lowers the heart rate, which indicates a lower stress level, in animals (just like in humans). When music is played, pigs startle less easily from sudden noises. A slaughterhouse in Belgium has installed speakers in the lairage and is very pleased with the result. In a German slaughterhouse, where they also play music, they have composed a Pig Pop CD with classical music and soft rock. The pigs in the lairages are calmer and the employees enjoy the music as well. Studies have shown that a content and relaxed employee is calmer when handling animals than a frustrated or bored employee.

- Prevent drafts in the lairage (see examples below). The presence of a draft will prevent pigs from resting and increases fighting. Make fencing solid down to the floor or use anti-draft curtains.

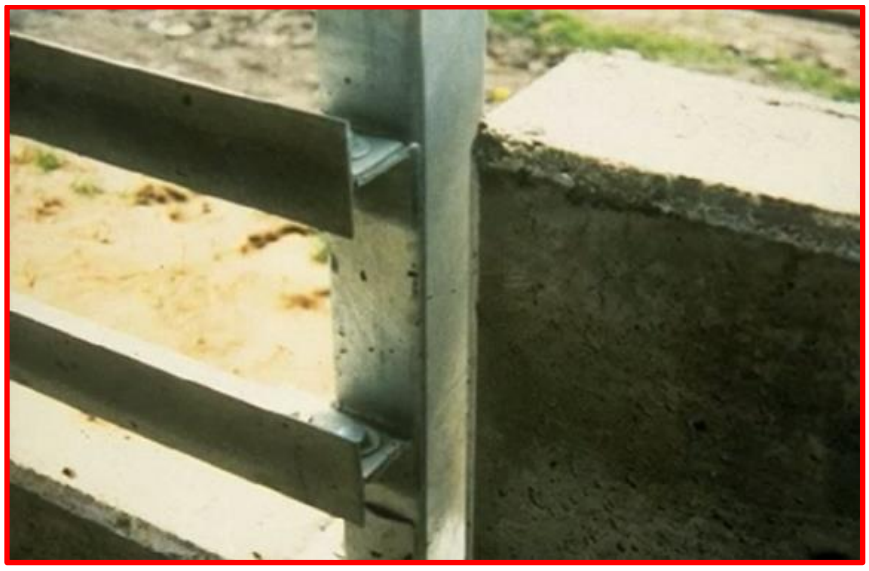
Anti-draft curtains at Westfort pig slaughterhouse in the Netherlands (left photo) and open gaps in the side walls of the pens cause unwanted drafts (right photo).

- Make non-slip flooring. Slippery floors cause injuries.



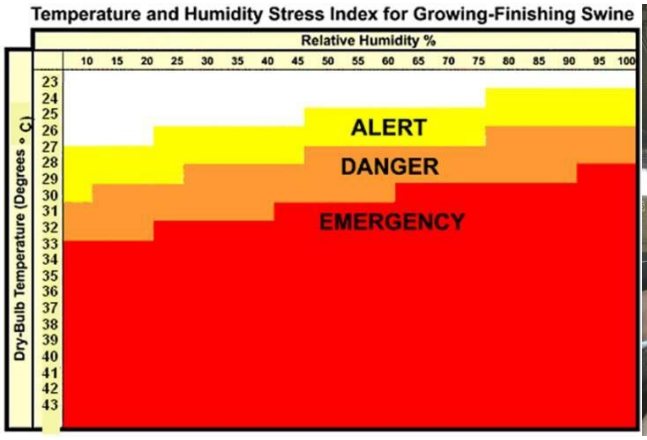
Examples of good non-slip flooring

- **Make sure that there are no sharp edges or pointy objects in the lairage** or any of the areas where live animals will be passing through. These will cause injuries.



Sharp protruding objects will cause injuries. Photo: T. Grandin

- The lairage should be equipped with a **good misting and ventilation system.** Pigs cannot sweat and therefore can overheat easily. Heat stress causes a lot of suffering and is one of the most common causes of death among pigs. Ensure that the temperature and humidity stays within the safe zone. Please refer to chart below.



Temperature- and humidity index

Misting system

- **Make sure there are powerful mobile fans available** that can be used inside the lairage when necessary, for example during a heat wave. These fans should be very powerful to be able to reach all pig inside the lairage.

Make sure there are mobile fans available that can be used inside the lairage when necessary

- **Use a floor cooling and heating system,** so pigs can be provided some comfort via the floor during summer and winter months.

Sick pen

- **Pigs that arrive in poor condition, are injured, sick or showing any signs of discomfort and suffering should be stunned and slaughtered immediately (using emergency slaughter) on the spot**. This is required by law. Even mildly sick or injured animals ("suspect animals") should be stunned and killed immediately to relieve their discomfort right away. Never let them wait until the end of the day – this prolongs their suffering.

  If slaughterhouses however make use of a pen for suspect animals, they have to make sure the conditions are optimal:

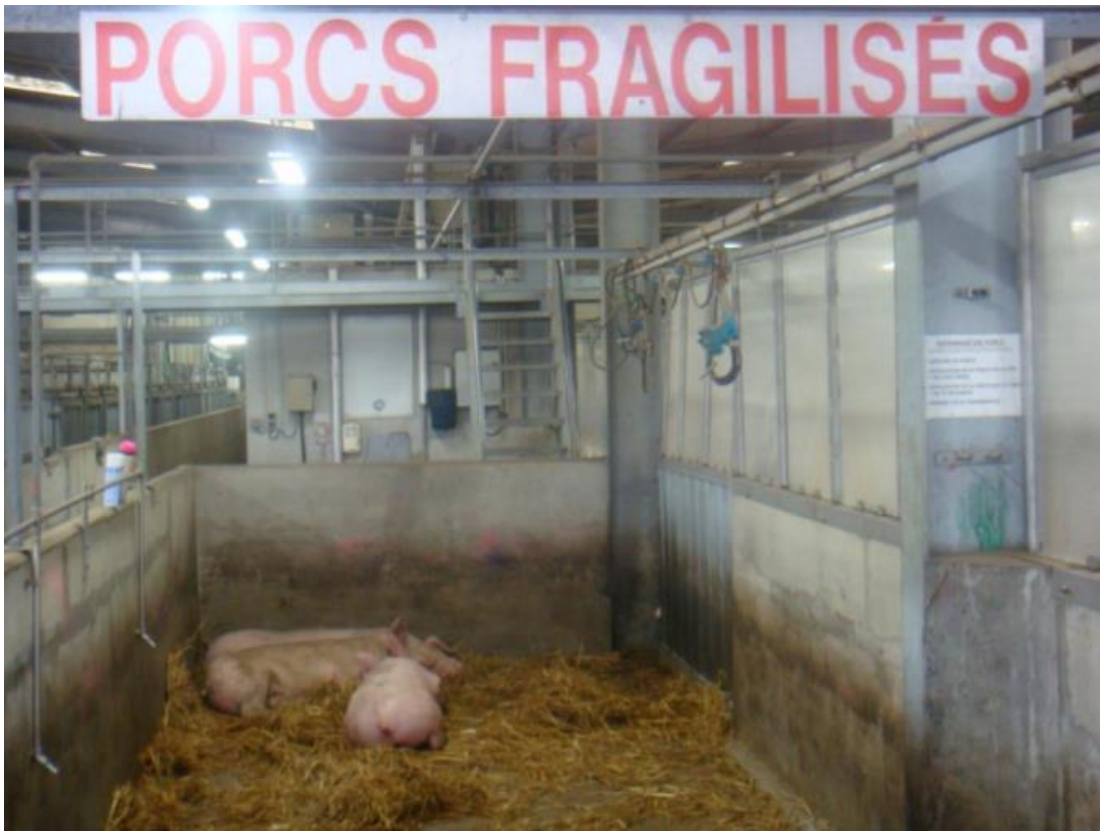
  - ✓ The pen should be near the unloading area so pigs can be rested immediately after unloading. This area is usually noisy however, so insulated walls or other options must be used to keep the environment inside the suspect pen quiet and non-threatening.

  - ✓ Provide a soft and warm lying area for the suspect animals. Offer the animals sawdust, straw, or rubber matting to lie on. Compaxo pig

slaughterhouse has installed floor heating in the sick pen. This is also a good idea to keep the pigs warm and comfortable. Cooperl offers straw, this is the best solution.

Rubber mats at Tönnies (DL)

Sawdust at VION



Straw at Cooperl (photo shot in 2008)

- ✓ Make sure that there are enough drinking nipples, easy accessible for all pigs (including the submissive ones).

- ✓ Make sure there is enough space and no draft.

- ✓ Make sure the floor is dry, especially in the winter. Wet floors easily extract heat from a pigs body. It can cause hypothermia.

- ✓ Make sure that the suspect pen is in a quiet area, or sealed off with sound panels so noise is kept outside.

- ✓ Give the pigs some corn kernels or bedding to keep them occupied.

- ✓ Place dividers into the sick pen so submissive pigs can be easily separated or protected from dominant pigs. Creating ways for submissive pigs to escape, reduces aggression and stress in the entire lairage area.

Moving the pigs

General

If pigs are scared to enter a raceway or reverse half way – there is a problem with the raceway, not with the pigs. Find out why the pigs are scared to move forward and remove the causes. Below is a list of design and handling problems that can cause pigs to panic and balk. Remember: a stressed pig is very difficult to handle – it is crucial to keep them calm and remove all potential stress factors!

- The use of **electric prods or sound producing paddles or clappers** is not necessary in a well-constructed passageway. Clappers or sound producing paddles cause a lot of stress because they are very noisy. They may not cause physical pain to the animals, but psychological fear caused by loud noise is just as bad. Soft samba rattles, a gently swaying plastic paddle, a plastic panel, or a flag are often enough to calmly move the pigs forward. Electric prods cause a lot of stress which will negatively impact meat quality. If pigs refuse to move without the use of electric prods or loud noises – there is a big problem with the design of your raceway. Find the causes!

A plastic panel, samba rattle or flag are often enough to move pigs forward. Do not produce constant sound.

- Pigs can be frightened of people or strange objects in their environment. This causes the pigs to pile up and become even more nervous. Place high solid panels at strategic spots to prevent their view of distractions (such as people and strange objects) so that pigs will walk calmly. The sides of the passageways should always be high and solid. Make sure that there are no strange objects lying around on the ground) of the passageways either. Even a simple water hose on the ground will cause pigs to hesitate as their curiosity kicks in and they want to explore the unfamiliar object first.

The high, solid sides prevent the pigs from seeing the people alongside the passageway.

- Make sure that the floors in the lairage and the passageways are made from the same material and colour. Pigs are sensitive to contrasts in colours and are not very good at seeing depth and distance. Differences in flooring causes stress and pile ups. Strange objects on the floor or something as simple as a drain can cause pigs to stop. Pigs want to investigate the floor before they dare to walk further. That is why drains should always be placed at the side of the passageway. Take into consideration that pigs have a range of vision of 310° enabling them to (partly) see what is happening behind them.

The sudden change on the ground, such as a plastic strip, a drain or change in floor material, colour and texture is enough to cause pile ups. © photos: T. Grandin

The drains are painted green to reduce contrasts. However the pigs were still distracted by the metal grey strips. © Eyes on Animals

Sudden change of colour of floor causing pigs to balk

- Make the flooring of the passageways non-slip. If pigs are scared to slip they will slow down or even stop walking, resulting in pile ups and stress.

- Prevent shadows or reflections of light on the floor. Pigs do not know what shadow is and want to investigate it before they dare to walk further. Shadows and reflections on the floor cause pile ups, delays, and stress in the pigs. Installing green lighting reduces shadows.

Due to the shadows and the reflections on the wet floor of this chute, pigs will balk. © T. Grandin

Green lighting was installed at Tönnies to reduce the creations of shadows.

- An important reason pigs refuse to enter a raceway is when air blows into their face. Pigs really become stressed in windy and drafty environments. If air is blowing in the raceway, the pigs will walk in the opposite direction, away from it.

- Make sure that all the floors in the slaughterhouse are level. Pigs are afraid of slopes, causing pile ups.

A raceway with a slope going upwards makes it difficult to move the pigs

- Use the principle that pigs like to walk towards the **light.** Lighting the end of a passageway (see pictures below) will facilitate pig movement. Prevent light shining directly into the face of the pigs because this inhibits their movement.

Fiddle with the angle of the light so that the least amount of shadows are created.

Compaxo placed extra lighting above the passageway. The result: the pigs are a little less stressed and walk forward more easily.

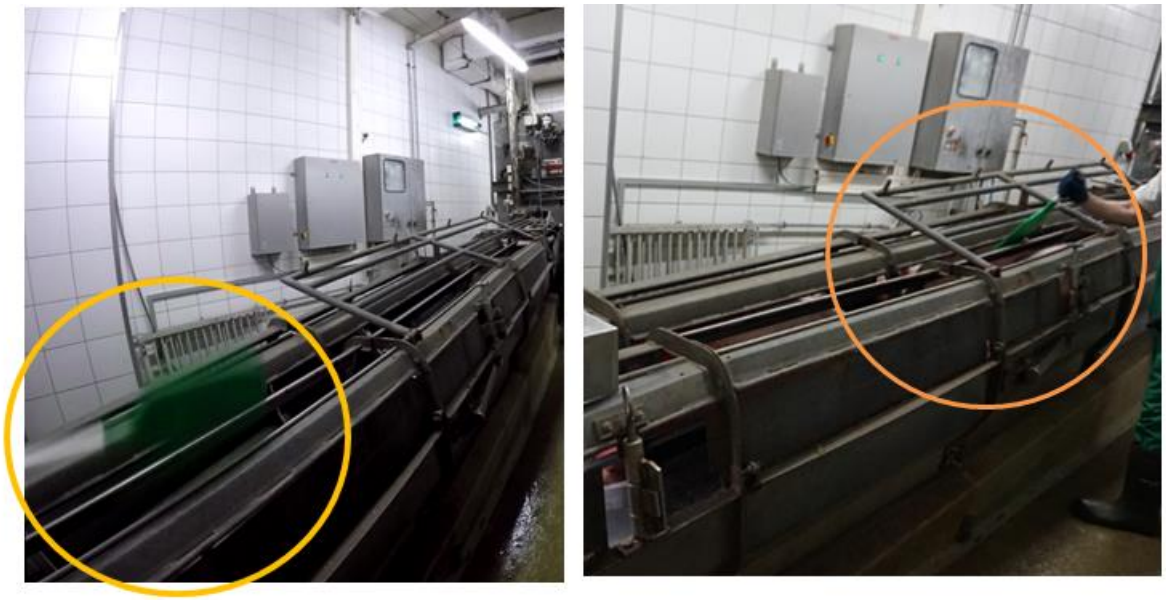
- Make sure that curves in raceways are wide enough and well lit – to prevent the illusion of a dead-end. A curved passageway is ideal because it gives pigs the impression that they are walking back to where they came from. A curve in a passageway limits the pigs' front and back view which reduces visual distractions. The exact sharpness of the passageway is very important. A pig needs to be able to view an area in front of him that has a length of at least 3-4 pigs. If not, the pig will think that there is a dead-end and walk back. Read more about curved raceways in chapter 'Electrical stunning'.

- Move pigs in small groups (6-8 pigs). Driving pigs in smaller groups is easier and prevents stress. The risk of mortality during handling is lowest when pigs are kept in small groups. Research shows that moving pigs in large groups does not save time, but people often think that. It is a myth.

- It is very important that the people moving the pigs are calm. Pigs perceive fast sudden movements as a threat. Pigs will try to escape or freeze when confronted with a perceived threat. When the employee stays calm, the pigs will also stay calm, making them easier to handle. Yelling, hitting or rushing the pigs makes them more difficult to handle and makes everything take longer. Go by the principle of "When you have an hour, it will take you 20 minutes, When

you have 20 minutes, it will take you an hour".

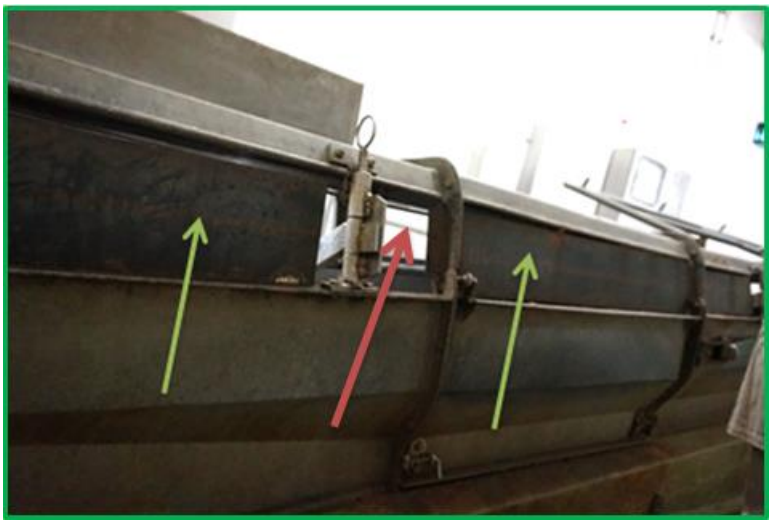
- **Make as little noise as possible. Rattles, clappers or sound making paddles (stress-stimuli) should be used as little as possible as it will make pigs stressed. Remember: stressed pigs are more difficult to handle and have a negative influence on meat-quality. If pigs are not willing to enter a raceway, or stop halfway → there is something distracting or scaring them. Try to find the causes instead of using sound or other stress-stimuli to force pigs forward.**



Never produce sound by hitting the raceway - it will cause the pigs to panic and is morally unacceptable. Panicked pigs are often more difficult to handle and their meat quality is reduced.

- **If pigs see people ahead – they will refuse to walk forwards. Especially if these people wear bright clothing, move or make sound.** Make sure your workers are invisible for the pigs – this can be accomplished by closing the sides of the raceway and make them of sufficient height. Close all gaps on the side of raceway. Remember: pigs have their eyes on the sides of their heads – they are very aware of what happens next to them.

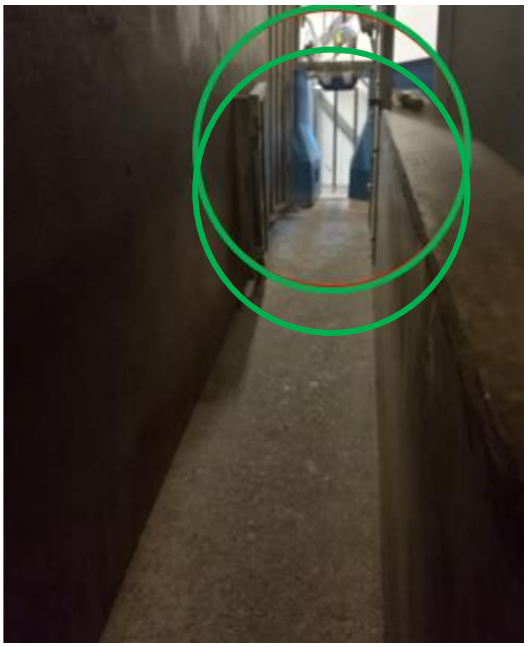
The worker at the end of the raceway can frighten and demotivate pigs to move forward. The blue anti-reverse door will also cause pigs to balk – it is a clear obstruction and colour contrast.



If a raceway is open on the sides – attach some side panels. This will block the pigs' view of workers or other distractions at the side. In this photo you can see side-panels (+) but there is still a gap that needs to be closed (-).

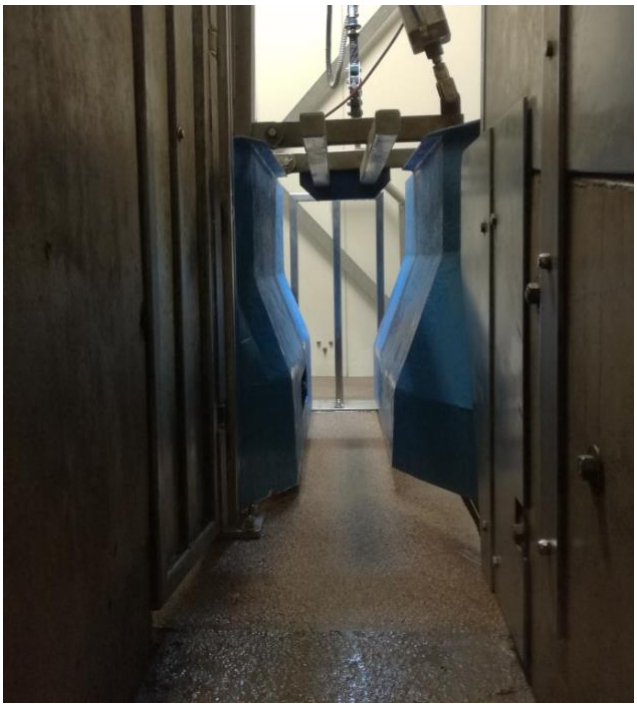
- Make sure you place your workers in the RIGHT position. It does not make sense to have a worker rushing the pigs at a point in the chute where they cannot move any faster and the worker just creates panic and stress, leading to a bottle neck effect. Place a person only at points where an animal may hesitate to move forward, to keep the flow going. Best is if pigs cannot see the workers.

- Make sure the restraint box at the end of the raceway is well-lit and open at the front. If a box is totally closed and dark at the front the pigs will know they will be trapped in the end (don't underestimate their intelligence!) and refuse to enter. Give the pigs the illusion that there is an escape route or exit ahead.

Before: raceway with dead end *After: raceway with a less dead end*

- Make sure the restraint box at the end of the raceway does not differ in colour from the rest of the raceway. If a box is really bright – pigs will be distracted or even frightened to enter it. Pigs are very sensitive to sudden changes of colour.



The restraint box in this photo is much more narrow than the raceway and has a bright blue colour. This will frighten the pigs and make them less willing to advance forward.

- Install video surveillance in the slaughterhouse. Research shows that employees handle the animals calmer when they know that there is video

surveillance. Gentler handling also positively influences meat quality. Video surveillance is also useful for discovering “stress markers” in the lairage, during handling and moving, and prior to stunning that can help you re-think that area and come up with solutions. Sometimes you see new things when looking at footage that you did not notice in “real life”. Compaxo, Tönnies, Euro Meat Group and Westfort use video surveillance. Make sure there is a protocol to make efficient use of the documented footage. Important questions to answer within this protocol are:

- ✓ How often the images are viewed; for example, 2-3 times a day at varying times for 20 minutes.
- ✓ By whom the images are viewed; preferably by animal welfare officers who alternate.
- ✓ To whom any misconduct / violations must be reported.
- ✓ A plan of action in the event of misconduct / violations being detected. After how many warnings, for example, will an employee be dismissed.
- ✓ Use video material also to teach employees. Very good animal handling caught on videotape should be rewarded.

Single file raceway to the electric stunner

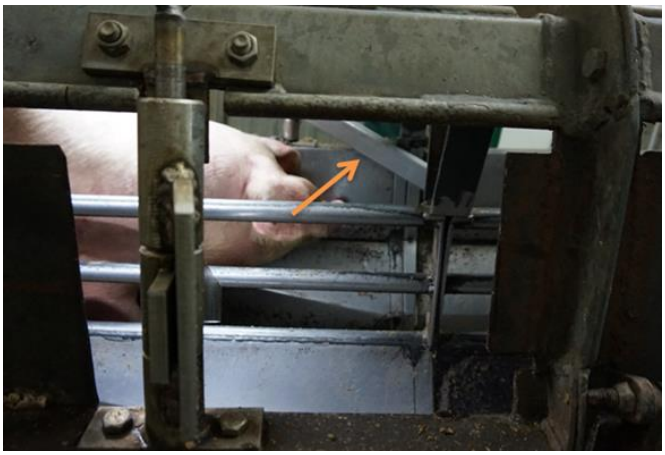
In electrical stunning, pigs are moved towards the electric stunner via a narrow, single-file raceway of approximately 10 metres long. In this raceway pigs have to walk behind eachother. As pigs are herd animal this stresses them out - they prefer to walk in small groups to feel safe. Electric prods or sound making clappers/paddles are often used to force pigs to enter the single file raceway. When a slaughterhouse choses electrical stunning system, it is important that this “stress-point” be dealt with, not only because of causing suffering and stress is unacceptable, but also because the last 5 minutes before pig slaughter have a huge impact on meat quality. If this stress-point is successfully solved, then electrical stunning is much better than CO2 stunning.

Reasons for pigs to balk, stop or pile up:

- **If pigs see a moving conveyer floor/belt they will balk. This can be prevented by lengthening the floor underneath the conveyer. Be aware that sudden changes of flooring can also cause pigs to balk.**

- To prevent pigs from walking backwards or piling up, slaughterhouses often install anti-reverse doors inside the single raceway. These anti-reverse doors

however often increase stress, because they form a clear obstruction, especially when they have a bright colour. To pigs it is not clear that these anti-reverse doors are flexible. Sometimes pigs will even try to crawl underneath them – which can cause entrapment. Instead of installing anti-reverse doors – find out what's causing the pigs to balk or pile up. In a well-designed raceway pigs will not balk nor will they need anti-reverse doors. Reasons for pigs to balk are: air blowing into their faces, an employee in front of them, noise or jerky movements further up ahead, shadows or reflections on the floor, strange objects in the single raceway, dead-ends. As long the causes are not detected or solved, we advise to make anti-reverse doors at least in the same colour as the floor and single raceway.

Anti-reverse doors form an obstruction for the pigs

- **Raceways with a cage construction work less well. Being surrounded by a metal construction gives pigs the impression that they are trapped.** A raceway with an open top and fully closed sides is much better.


Raceways with a cage construction (see photos) work less well than raceways with an open top

- **If however a raceway with a cage-construction is used – make always sure that the pigs do not touch the metal bars when walking. If pigs touch the ceiling with their backs – they will be hesitant to walk further.** The metal bars of the ceiling should be at sufficient height to avoid that the pigs rub their backs along them. If pigs of different sizes are slaughtered, the ceiling must be high enough for the tallest ones.

This raceway is too low: the pigs' back is rubbing against the top of the raceway. There is a big chance this pig feels trapped, will hesitate to walk further and stops.

- Eyes on Animals advises pig slaughterhouses using electrical stunning to use a curved raceway, like the Corral system designed by Temple Grandin. The Corral system brings the pigs in a curve towards the single-file raceway. A corral system eases movement and reduces fright and stress in the pigs because the round curve gives the impression that the pigs will eventually be returning into the group. They are therefore less hesitant to enter the single file chute. Make sure that curves in raceways are wide enough and well lit – to prevent the illusion of a dead end. A pig needs to be able to view an area in front of him that has a length of at least 3-4 pigs. If not, the pig will think that there is a dead end and walk back. In North-America several slaughterhouses work with the corral system of Temple Grandin.

The Corral system. This design works very well according to Temple Grandin. There are however too many pigs in the Corral system on the photos. Temple Grandin recommends to only fill up half of the Corral system with pigs.

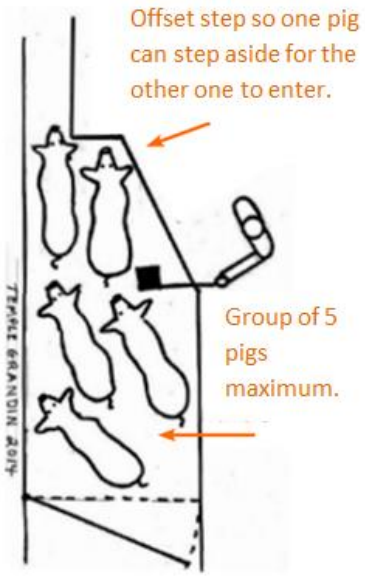
A Corral system with two narrow passageways. If the partition between the two chutes is made to be see-through than the advantage is that the pigs can see each other. © T. Grandin

- The German slaughterhouse Thönes Natur and Austrian slaughterhouse Grossfurtner also use a corral-shaped chute to herd pigs into the single-file raceway to be electrically stunned. It was designed as a corral to reduce stress and panic often caused when pigs are forced to move from a group pen into single-file.


Corral shaped double entrance raceway for pigs at Thönes Natur slaughterhouse

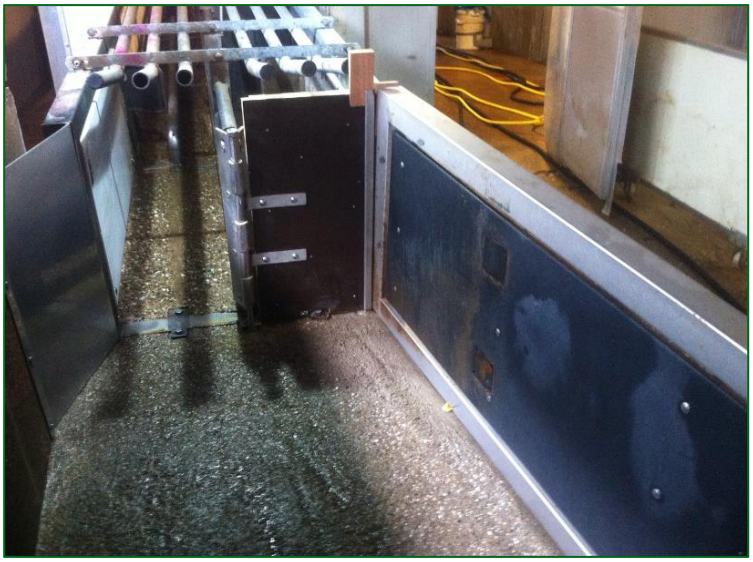
We visited Thönes Natur and were very impressed with this corral-shaped chute because indeed the pigs moved in a much calmer manner than seen in other slaughterhouses using straight-files. The raceway also has a double entrance to the stunner so pigs do not have to be forced into one direction. Watch a video here.

- Slaughterhouses that use electricity to stun pigs often use a funnel-shaped entrance to the single file raceway. A funnel-shaped entrance however will will just lead to bottle-necking. Grandin recommends some alternatives, such as an offset step design so that one pig can step aside to allow another one to pass. See the illustration of the design below.



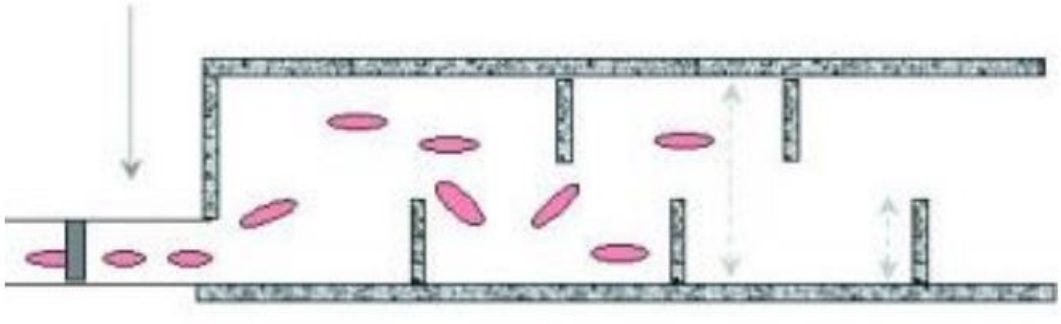
Offset step design

- Slaughterhouse Compaxo made such an offset step to reduce pile ups and panic.

Before: funnel shape entrance *After: offset step entrance* *© Compaxo*

- Another way of easing the movement of groups of pigs into a single raceway is by using a labyrinth race. This is considered one of the most effective designs to keep stress levels low. A labyrinth race is split into sections by partitions on both sides that reach half the race. There should be 160cm in between each partition on opposite sides of the wall. Please see the design below. In each section the group of pigs will become smaller in a natural way – as some pigs will move forward and some will be stopped by the partition. At the end pigs will walk behind eachother in the single raceway without having been forced and without panic.



Source: **Humane Slaughter Association**

- The stress that is caused by moving the pigs to the single file can also be reduced by building a **stepped raceway**. In a stepped raceway groups of pigs will slowly be made more narrow – step by step. A stepped raceway will make

the movement of the pigs towards the single file less abrupt and more natural.

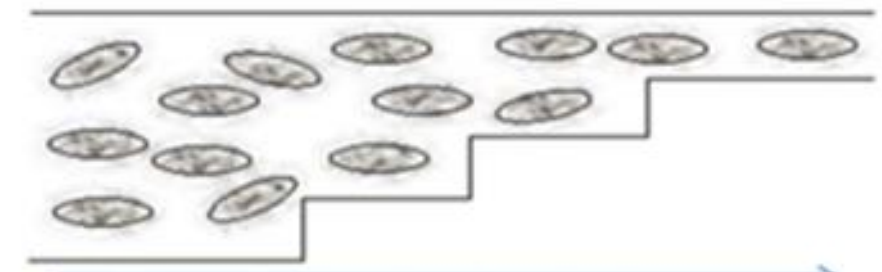


Figure 8 Diagram of a stepped race for moving pigs

Source: **Humane Slaughter Association**

Raceway towards the CO2 stunner

If pigs are stunned with CO_2 they are often moved in groups toward the stunner.

- **Moving pigs by calm and professional employees is better than using automatic doors.** Automatic doors force pigs forward – even when pigs are facing the other direction or scared to move. This causes pigs to fall, panic or injure themselves. Moving pigs in groups rather than in a single file improves their welfare. However this advantage disappears totally if pigs experience much stress by the automatic doors.

- In case automatic doors are used, try to use as few doors as possible. Make sure that the doors do not slide back directly above the pigs when they are moving back to their starting position. The sound and movement of these doors directly above the heads of the pigs causes a lot of stress and fear. It's better to let the doors slide back parallel to the passageway of the pigs, out of sight to the pigs. Another option would be to let the door slide back very high (at least 3 meters above the pigs) so that the pigs barely notice the doors.

Stunning

Pig slaughterhouses in Europe use either electrical stunning or CO2 stunning. Eyes on Animals has made a film comparing both stunning methods: CO2 stunning vs. electrical stunning.

The advantage of stunning pigs with electricity is that they immediately lose consciousness. The disadvantage is that they need to be separated from the group and walk into a single file raceway (behind eachother) that leads them to the

automatic electric prongs. This causes stress. Pigs are herd animals and want to stay in the group no matter what. Natural pig flight- and herd behaviour should be taken into account when designing the single file raceway towards the electrical stunning system. This would prevent a lot of suffering. See also the chapter Single raceway to the electric stunner.

During CO_2 stunning, pigs are stunned in groups but the inhalation of CO_2 causes approximately 20-30 seconds of severe fear, breathlessness, and a painful burning sensation in the air passageway. Video recordings have shown that pigs panic so much that they attempt to escape before they become unconscious. For these reasons, CO_2 stunning has been criticized by many large animal-welfare organizations and scientists. In 2015 the Dutch House of Representatives for this reason accepted a motion by the Dutch Political Party for Animals to phase out the use of CO_2 for stunning pigs prior to slaughter.The European Food Safety Association and the Eurogroup for Animals welfare have both stated publically that the stunning method applied to animals at slaughter must be quick and non-aversive. This could mean that CO2 stunning will be banned in the future.

Eyes on Animals has initiated a willingness in the sector to look for a brand new alternative to stun pigs humanely before slaughter. Eyes on Animals hopes that a brand new method will be available in the near future and once it is ready, will encourage plants to make the switch immediately.

Electrical stunning

- **Electrodes first need to be applied to the head (to stun the pig) and then to the heart (to cause cardiac arrest). If electrodes are applied only to the head a pig can regain consciousness too soon!**

- **To efficiently stun pigs - a minimum current of 1.3A per pig needs to be used.** The current needs to be applied to both sides of the head for 3 seconds minimum and after on the heart for 3 seconds. To induce cardiac arrest low frequencies have to be used (50 of 60hZ). If bigger pigs are slaughtered, like sows or board, the current has to be increased to 3A minimum.

- Always make sure that each pig is stunned correctly. **A pig that is correctly stunned with electricity will undergo two phases. The tonic phase in which the pig immediately collapses and contracts his/her muscles and the clonic phase in which the pig will kick involuntary with his/her legs.** Slowly the body will than relax. A tonic and clonic phase is a sign of an epileptic

insult – the pig is unconscious. Make sure pigs stay unconscious until they are debled and dead.

Check signs indicating if the stunning was successful or not:

- ✕ If a pig does not show a clonic and tonic phase, stunning may have failed.
- ✕ When a pig blinks spontaneously, in a natural way, or follows movements with the eyes, it is definitely still conscious.
- ✕ If the pig responds to a pain stimulus (for example on the nose), the pig is definitely conscious.
- ✕ If the pig shows an upright reflex (raising of the head or upper body) the pig is definitely still conscious.
- ✕ When a pig shows rhythmic breathing the pig is definitely conscious.
- ✕ If a pig screams or makes other sounds the pig is still conscious.
- ✕ If a pigs reacts to the cut, or other slaughtering processes, it definitely feels pain and is therefore conscious.
- ✕ The bodies on the slaughterline have to be floppy. If some pigs differ in body posture from the others, be aware, it is possible they are not correctly stunned or will regain consciousness. Check for other signs of consciousness.

- Make sure the electrodes are cleaned every day, so the current flows well. Also check the settings and stunning efficiency every day.

CO2 stunning

- Setting the parameters of the CO2 system to render the pigs not only unconscious but dead by the time they exit the chamber is advantageous over just stunning them with CO2 as the risk of the pigs regaining consciousness is eliminated.

- Always make sure that each pig is stunned correctly. Their reaction differs per stunning method.

Check signs indicating if the stunning was successful or not:

- ✕ When the pig responds to the cornea reflex test (the pig blinks when you gently touch his eye) he may be regaining consciousness.
- ✕ When a pig blinks spontaneously, in a natural way, or follows movements with the eyes, the pig is definitely conscious.
- ✕ If the pig responds to a pain stimulus (for example on the nose) the pig is definitely conscious.
- ✕ If the pig shows an upright reflex (the head or upper body is lifted) the pig is definitely conscious.
- ✕ When a pig shows rhythmic breathing the pig is definitely conscious.
- ✕ If a pig screams or makes other sounds the pig is still conscious.
- ✕ If a pigs reacts to the cut, or other slaughtering processes, he or she definitely feels pain and is therefore still conscious.
- ✕ The bodies on the slaughterline have to be floppy. If some pigs differ in body posture from the others, be aware, it is possible they are not correctly stunned or regain consciousness. Check for other signs of consciousness.

General

- Make sure there is a backup stunner (manual electric prongs) placed at two key positions: right after stunning and in front of the water boiler.

- If there is any doubt about the depth of the unconsciousness than the pig should be re-stunned immediately.

- Make sure there are two employees continuously checking if pigs are unconscious. One person should be positioned directly after stunning and one person should be positioned right before the water boiler.

Debleeding

- Only perform bleeding when there are no signs of consciousness. See chapter Stunning.

- An electrical stunned pig should be debled as soon as possible and at least within a maximum of 15 seconds.

- A pig stunned with CO2 should be debled as soon as possible and at least within a maximum of 25 seconds.

- The cut should be made just below the sternum. The knife blade should be at least 15cm long.

- The cut should be made in one fluent movement (not back and forth) in which both the carotid arteries and jugular veins are cut. Make sure the cut is not too small, the blood flow should be rapid.

- Make sure pigs are debled for a sufficient amount of time, so they are dead before they enter the water boiler/scalding tank. If pigs are not dead yet, there is a risk that they regain consciousness during the scalding process. This is totally unacceptable.

- At Tönnies the pigs are weighed after sticking to measure if they have lost enough blood to ensure that the pigs do not regain consciousness.

At Tönnies there is a monitor showing the amount of blood that a pig has lost in kilograms

- Make sure both carotid arteries and jugular veins are cut – so the pigs lose a lot of blood in a short period of time. If the cut (stick) is correct, there should be a rapid blood flow. If the blood-flow goes slowly – make sure you make a new proper cut.

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