



Improving animal welfare in pig slaughterhouses

How to reduce stress, suffering and ease handling

Unloading

- 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 easier 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:



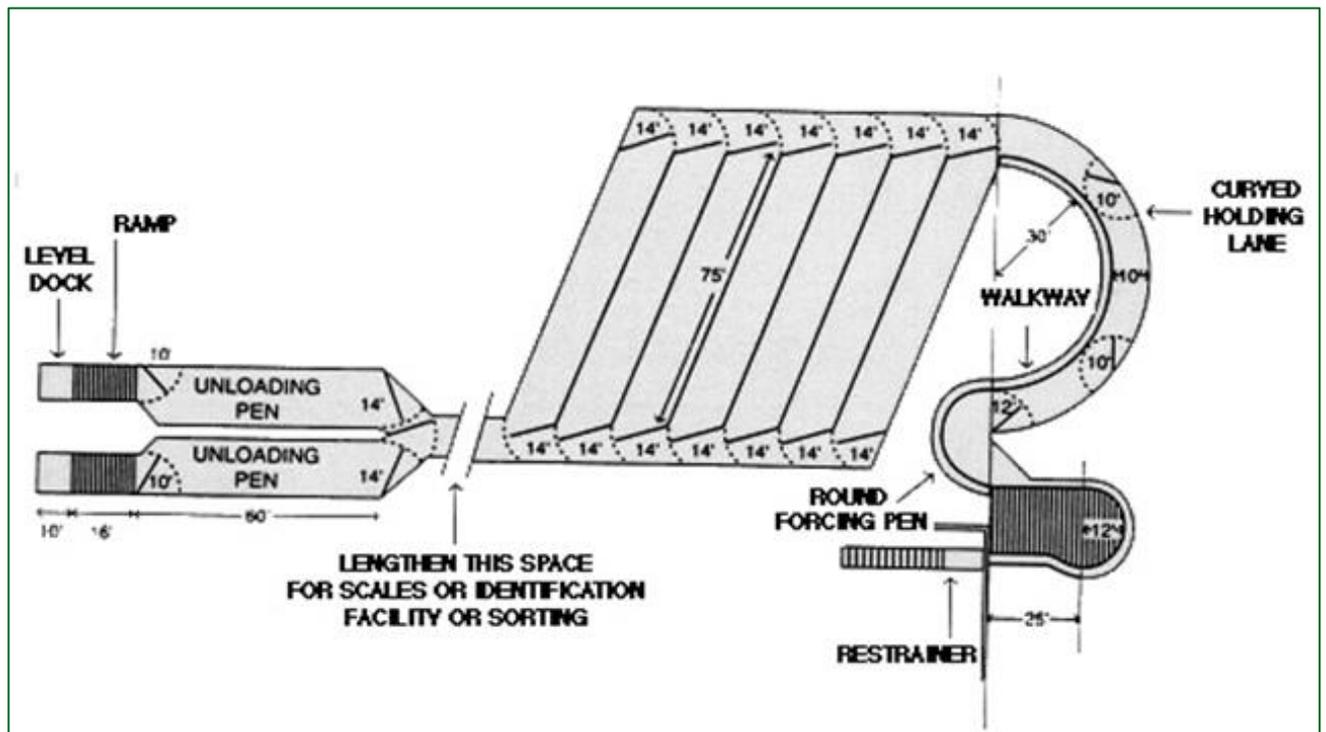
- The steeper the slope, the more fearful the pigs are. The slope of the tailgate should never exceed 15°.
- Illuminate the place where the pigs are unloaded. Pigs tend to walk more easily towards an illuminated area. Ensure that light does not shine directly into the face of the pigs because this inhibits their movement.
- The floor in the loading ramp 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.

Lairages

- Allow the pigs to rest for 2-4 hours before slaughter.
- Long, narrow pens where pigs can enter on one end and can exit on the other end 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.

- Use **partitions** to keep different social groups separate from one another in the lairage. Keeping pigs in the same established groups and not mixing them minimizes fighting. Mixing of unfamiliar pigs leads to a lot of fighting because they have to re-establish the **hierarchy order of the group**. 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

- Make sure that the **pens are not too full**. Pigs fight considerably less in pens that are maximum 2/3 filled. Half full is best.
- When different social groups have to be mixed, make sure that the pigs can escape from each other. Including a separate narrow passageway within the lairage pen, where a pig can run into to be alone, could be used for this purpose. Creating ways for submissive pigs to escape reduces aggression and stress in the entire lairage area.
- Scatter some **corn** in the lairage pens before filling them up with pigs. The newly-arrived pigs will make a positive association with the new place and 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](#)



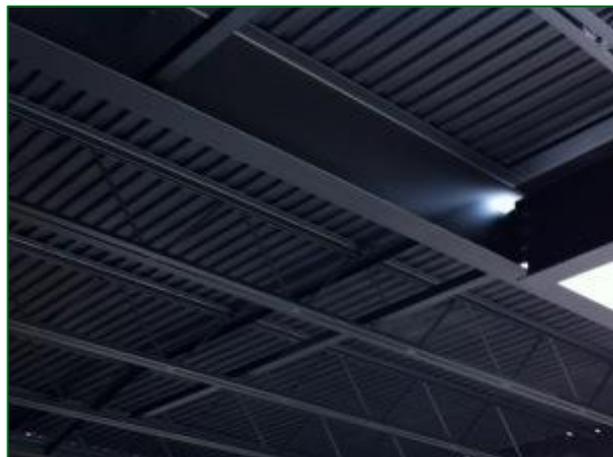
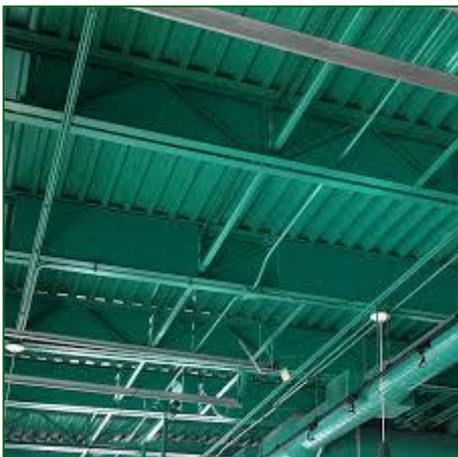
Scattering corn creates a positive distraction for the pigs and will decrease fighting behaviour.

- 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. 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.



Export station Harfsen uses plastic fencing. Because of this, there is hardly any 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.

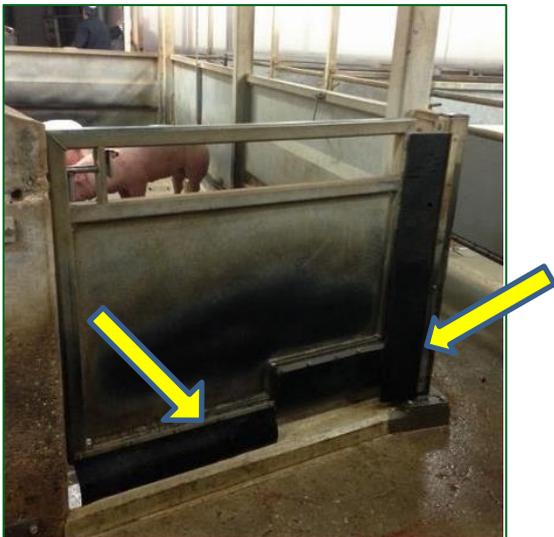


Sound absorbing design and material of ceilings

- 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

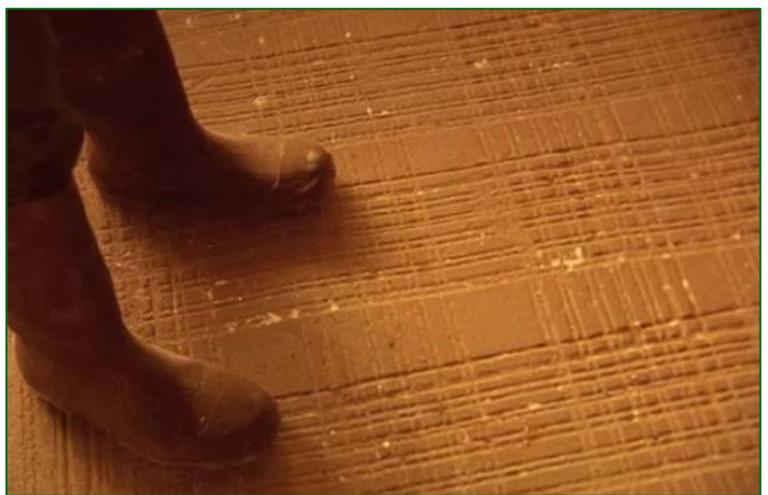
Pig Pop CD with classical music and soft rock. The pigs in the lairages are calmer and the employees enjoy the music as well. Studies have shown that a content and relaxed employee is calmer when handling animals than a frustrated or bored employee.

- Make sure that the **ventilation system** works well. Pigs cannot sweat and therefore can overheat easily. Heat stress causes a lot of suffering and is one of the most common cause of death among pigs.
- Prevent drafts in the lairage. 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.



New anti-draft curtains at Westfort pig slaughterhouse in the Netherlands.

- Make non-slip flooring.



Examples of 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 will cause injuries. Photo: T. Grandin

Sick pen

- Pigs that arrive in poor condition and showing signs of discomfort and suffering should be stunned and slaughtered immediately (using emergency slaughter). Do not wait until the end of the day.
- Create a place near the unloading area where sick pigs can be stunned and killed immediately. Even mildly sick or injured animals (“suspect animals”) are immediately stunned and killed at Tönnies slaughterhouse in Germany to relieve their discomfort right away. The carcasses of these animals are then inspected by a veterinarian. After receiving approval, the carcass will proceed to the normal slaughter line. This prevents any risk of contamination of the slaughter line.
- Make sure that the environment in the sick-pen is ideal to make the pigs as comfortable as possible. Provide a soft and warm lying area for the 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.



At Tönnies the sick-pen has rubber matting and toys. At Cooperl the sick-pen has straw, which is the best option.

- Make sure that there is drinking water in the lairage pen, enough space and no draft.
- When the pigs stay in the sick pen for a longer period of time, make sure that the pigs have food and something to keep them occupied, such as some corn or some bedding material.
- Make sure that the lairage hospital pen is in a quiet area, or sealed off so noise is kept outside. Under no circumstance make the hospital pen close to where animals are passing through from one place to the next, with lots of activity.

Moving the pigs

- 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. 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.



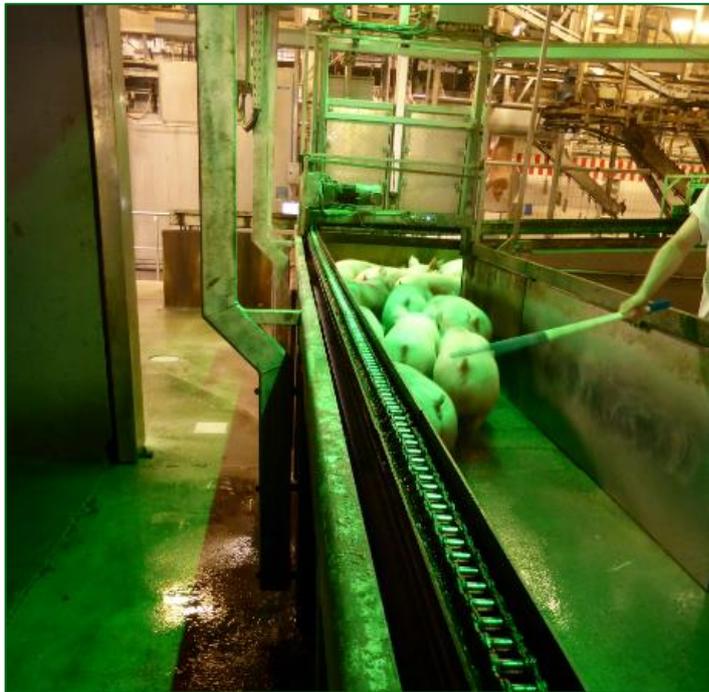
The sudden change on the ground, such as a plastic strip, a drain or change in floor material, colour and texture is enough to cause pile ups. © photos: T. Grandin

- Make the flooring of the passageways non-slip.
- Prevent shadows on the floor. Pigs do not know what shadow is and want to investigate it before they dare to walk further. Shadows cause pile ups, delays,

and stress in the pigs. Installing green lighting reduces shadows.



Pigs will often balk in this passageway due to the shadows and the reflections on the wet floor. © T. Grandin



Green lighting was installed at Tönnies to reduce shadows.

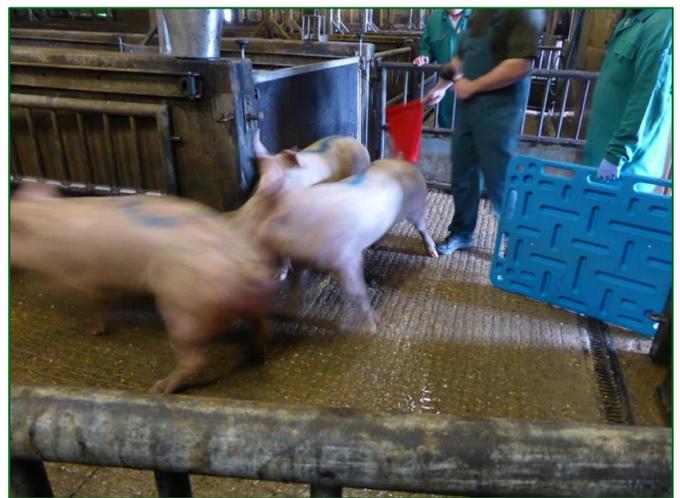
- Make sure that air does not blow in the faces of the pigs. Pigs really become stressed in windy and drafty environments. . If air is blowing in the passageway, the pigs will walk in the opposite direction, away from it.
- Make sure that all the floors are as even as possible. Pigs are afraid of slopes, causing pile ups. A very small slope is not a problem.
- 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 less stressed and walk more easily.

- Move pigs in small groups (6-8 pigs). Driving pigs in smaller groups is easier, 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”.
- The use of **electric prods** is not necessary in a well-constructed passageway. Clappers cause a lot of stress because they are very noisy. Samba rattles, a 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.



A plastic panel, a samba rattle or a flag are often enough to get the pigs to move forward.

- Prevent sharp corners or dead-ends in passageways. 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’](#).



Corral shaped raceway for pigs at Thönes Natur. [Watch video here](#)

- 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.

Stunning

Pig slaughterhouses in Europe use either electrical stunning and CO2 stunning. Eyes on Animals has made a film showing 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 in larger slaughterhouses they need to be separated from the group and walk in single file through a chute that leads them to the automatic electric prongs. This causes a lot of 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 passageway towards the electrical stunning system. This would prevent a lot of suffering.

During CO2 stunning, pigs are stunned in groups but the inhalation of CO2 causes approximately 20 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, CO2 stunning has been criticized by many large animal-welfare organizations and scientists. 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. As of the summer of 2015, Tönnies and V-Cons are investigating into an alternative system. 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

- In electrical stunning, pigs are moved into a chute of approximately 10 metres in length where the pigs move in a single file towards the electric prongs that move onto their heads automatically and stun them. Pigs are herd animals so they resist to being separated from the group. Electric prods are often used at this point to force pigs to enter the single-file chute. When a slaughterhouse chooses electrical stunning system, it is important that this “stress-point” be dealt with. Not only because of animal welfare but also because the last 5 minutes before slaughter are essential for good meat quality. If this animal welfare problem is successfully solved, then electrical stunning is more animal friendly than CO2 stunning.
- 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 chute. 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.



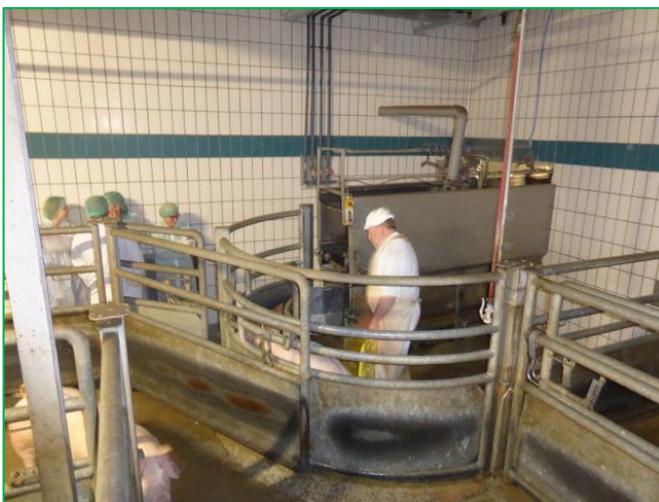
The Corral system. This design works very well according to Temple Grandin. There are however too many pigs in the Corral system on the picture. Temple Grandin recommends to only fill up half of the Corral system with pigs.



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

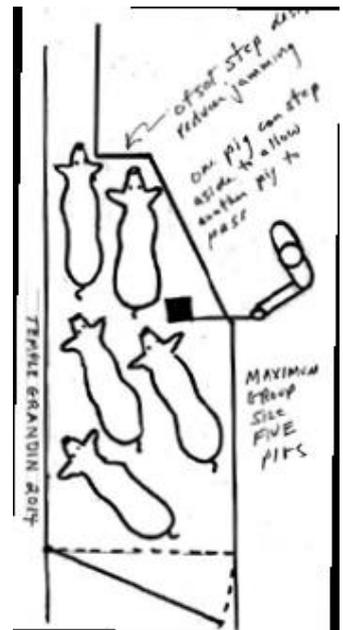
Thönes Natur, a slaughterhouse in Germany, also invented and designed a corral-shaped chute to herd pigs into the single-file raceway to be electrically stunned. It was designed as a corral to reduce stress and panic often caused when pigs are forced to move from a group pen into single-file. We visited 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-chutes. 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.](#)



Corral shaped double entrance raceway for pigs at Thönes Natur slaughterhouse

- A funnel-shape entrance into a single file chute at pig slaughterhouses using electricity will just lead to bottlenecks. Dr. Grandin recommends an offset step design so that one pig can step aside to allow another one to pass. See the illustration of the design on the right.



Offset step design. © T. Grandin

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



Before: funnel shape entrance



After: offset step entrance

© Compaxo

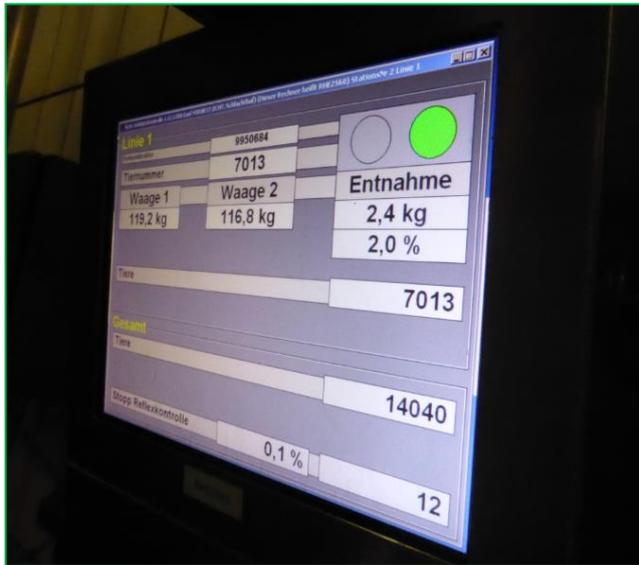
- Make sure you place your workers in the RIGHT position. It does not make sense to have a worker rushing the pigs at a point in the chute where they cannot move any faster and the worker just creates panic and stress, leading to a bottle neck effect. Place a person only at points where an animal may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

CO2 stunning

- Driving pigs by calm and professional employees is better than pushing pigs forward with automatic doors. When using automatic doors, pigs that are standing in the wrong direction could fall, panic, or get injured. In case automatic doors are chosen, try to use a 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.
- 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.

Follow-up checks

- Always make sure that the pigs are stunned properly. 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, than the pig is definitely conscious. The pig is also conscious when he responds to a pain stimulus on the nose, when he tries to lift his head, or when he breathes rhythmically. 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. There are also two employees at Tönnies that continuously check whether the pigs are unconscious: one person is checking each pig for signs of consciousness directly after being stunned and one person is positioned right before the broiler. If there is any doubt about the depth of the unconsciousness than the pig should be re-stunned immediately with manual prongs that should be placed at these two key positions..



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

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