



Eyes on  
Animals

Watching  
out for their  
welfare

## Industry tips – Poultry transport





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## Crate design

Crates are often used for the transport of laying hens and breeders. During our inspections of poultry trucks, Eyes on Animals inspectors regularly find birds that are injured or dead as a result of poor crate design and rough loading into the crates. Below the main problems and possible solutions are discussed.

### Injuries caused by oversized ventilation openings

If the ventilation openings of a crate are too large, body parts can stick out and risk being crushed when the crates are then stacked or put on the truck. If, for example, a head protrudes out the top of the crate, then it will be crushed if another crate is put on top.

#### *Pinched toes*

One of the most common problems we observe is that of chickens' toes sticking out of the crate floor and curling around it. When the crates are stacked on top of each other, the toes are crushed or torn off. Such injuries cause excruciating pain.



Risk: If protruding toes curl around the crates, there is a high risk that they will be crushed when the crates are stacked.



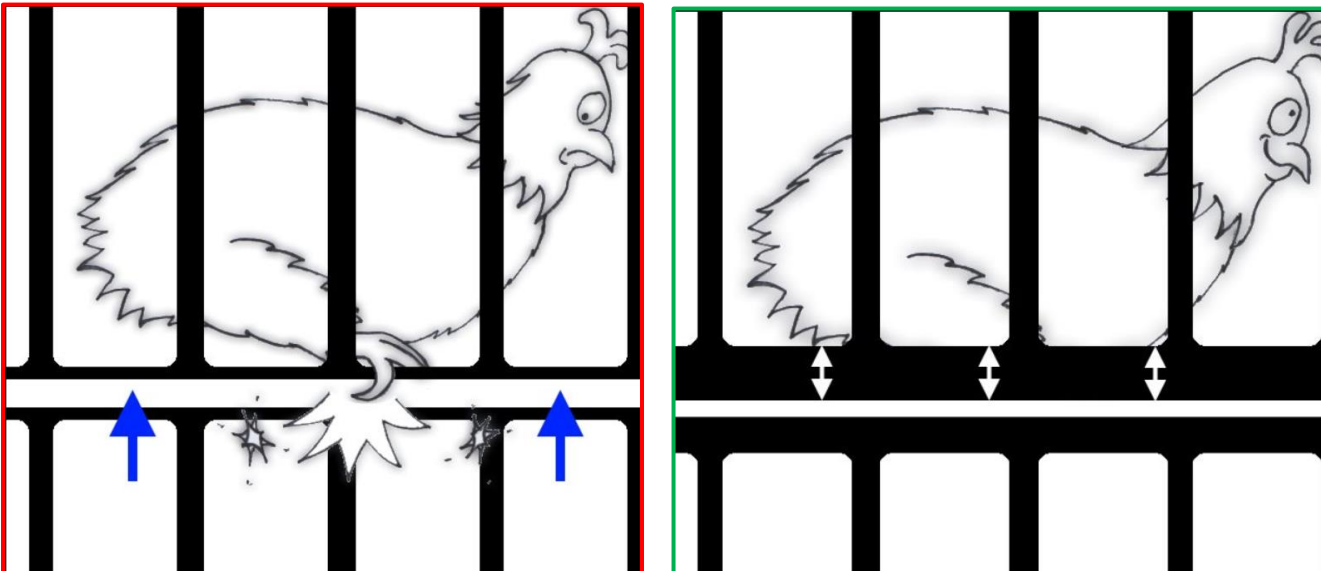
Torn off chicken toes bleed heavily



This problem can be prevented by making a solid lip (raised edge) at the bottom of the crate, or to make the edge wider, so that there is less chance that the chickens' toes stick out or curl around the floor. Crates with a wider edge are already available on the market but are unfortunately hardly used.



By widening the edge, it is less likely that toes "curl around it". However, even better is if there is a solid "lip" at the bottom of the crate preventing toes from protruding at all.



By making the lower side wall of the crates solid (lip) chickens' toes remain in the crate and are not crushed when stacking

- ✅ By making the lower side walls of the crate solid (solid lip), chickens' toes remain in the crate and are not crushed when stacking. Also, the edge can be made slightly wider, reducing the likelihood that the toes "curl around it"
- ✅ Don't make ventilation openings too large - wings or heads must not be able to fit through them.





## Injuries caused by the door design

### *Hinged doors*

In the Netherlands, crates with hinged doors have been forbidden as of 2016 because the risks of body parts - such as the wings or the head – getting caught when closing them are too great. With a hinged door, body parts of a bird risk getting crushed on three sides, compared to a sliding door where there is only a risk on one side.. Sliding doors are therefore also easier to use correctly with the chicken catcher having the opportunity to be more careful.



Chickens can get caught between the door on three sides with a hinged door (left), with a sliding door (right) there is only one side where this can happen.

During our inspections of poultry trucks, Eyes on Animals regularly comes across birds with body parts crushed in the hinged doors.



Wings caught when the door is slammed shut.

In the Netherlands hinged doors, as a result of our inspections and consultation with the industry and NVWA, are no longer allowed. However in other European countries hinged doors are still used.



- ✅ Always use crates with sliding doors, to facilitate their use and to reduce the risk that chickens get caught in the door.

### ***Too-small doors***

During current commercial catching methods, a number of birds are put into the crate at the same time. Often 4-5 per hand. This is in itself a problem and catching and loading methods need to be phased out and replaced with catching birds upright and not more than 2 at a time being placed into the crate.



Commercial catching (left photo) causes pain, injuries and stress to birds and should be replaced with upright catching (right photo)

However, as long as commercial catching methods are in use, the doors of the crate must be big enough, so that there is no real force needed to put a group of 3-6 birds into the opening of the crate. However often the doors are too small, so that the birds have to be literally stuffed into the crate. Logically this makes the birds panic, so they resist and get injured. Large doors are therefore also easier to use. In addition, of course, the catchers should adjust the number of chickens that are put in a crate at the same time according to the size of the door so that there is no need to stuff them into the opening and injuries can be prevented.



If doors are too small chickens are literally crammed into the crate - injuries are the result

- ✅ Make the doors big, so that the birds go through the door-opening without force or resistance. This makes the work of the catcher easier, more efficient and is better for the birds' welfare.





- ✔ Do not put too many birds through the door-opening at the same time in order to prevent injuring the birds.

## Watering system

### *Insufficient nipples for the current loads*

It is mandatory to provide water and food to poultry when transporting them for more than 12 hours. In practice, we only see one nipple per crate. Additionally, there is not enough room for all the birds to walk towards the drink nipple. Also, the birds cannot stand upright because of the limited height of the crate, which makes walking difficult. It appears that the current drink nipples for poultry are not effective. Research or video surveillance of the birds actually using the water nipples has never been conducted either. This should be required before such nipple systems be used, to test for their effectiveness. To our knowledge, feed is never offered to the birds despite many going on journeys for longer than 12 hours (eg. Breeders from NL to Portugal and spent-hens and spent-breeders going for slaughter from NL to northern Poland).



The current water system appears insufficient and loading densities aggravate access to the water for all birds.

- ✔ Provide an adequate water system, or elongated troughs to ensure that all the birds can drink. As long as there is no effective liquid and feed system on the market, long-distance transport should not take place.

### *Hypothermia*

Another problem is that sometimes drink nipples leak. Laying hens are very sensitive to cold. All their energy goes to laying eggs and they have little fat and often bad plumage. If the hens become wet, they are particularly at risk to hypothermia, especially when it is also cold outside.



Leaking drink nipple in poultry transport

- ✅ Avoid at all times that nipples leak - this means that the birds become wet and are at risk of becoming hypothermic during transport, particularly if it is also cool outside.
- ✅ Check regularly for leaking nipples.

## Container design

For the transport of broiler-chickens, containers with drawers or trays are most often used instead of stacked crates. The broiler chickens are mechanically or manually put into the drawers and then the drawers are shut. The main producers of containers in Europe are : Meyn, Stork Linco and Anglia Autoflow. Some containers have drawers that - after they have been loaded with chickens - are pushed closed (Anglia Autoflow). It's hard work to push the drawers closed because they are very heavy once the birds are inside. The bigger the drawers, the harder the work. Other containers are loaded from the bottom up - when the drawer is full, the empty tray above is pulled forward (Meyn and Linco) or the lid is unfolded (Stork). For more information and improvements for the different container systems, see the section [Container Systems and improvements.](#)

## Trapped heads or wings

Catching and loading broiler-chickens is often done at a very high speed. When the drawer is being closed, sometimes the chicken cannot withdraw its head or wing on time. If there is insufficient space above the head of the chicken and the frame, the lid or the next drawer, the head or wings of the bird is at higher risk of being crushed.





Sadly, we continue to see dead or injured birds from having their head or wings crushed when drawers are shut.

In order to prevent the heads of birds from being crushed, there should be sufficient space above the chicken and the lid, the frame or the next tray, so the bird can retract his or her head easily.

- ✅ Shut the drawers carefully. Always make sure no heads, wings or other body parts are protruding.
- ✅ In systems where loaded trays are pushed shut – make sure these trays are not too big. If the trays are too heavy, it is more difficult to open them again to release a trapped bird.
- ✅ Make sure there is sufficient space in between the drawers to prevent body parts getting crushed.

### Trapped toes during stacking

During inspections, we sometimes see that the toes of broilers get caught between the frame and the floor of the containers. This can be a design problem. Also, it may be that the floor droops as soon as the chickens are loaded on it (due to the loaded weight)- or it is bent from tare and wear. Always make sure that there are no seams or crevices where toes can get stuck.



- ✅ Make sure that there are no seams or crevices where the chickens' toes can get stuck, or make the crevices so wide that the animals can always retract trapped body parts.

### Number of drawers

Research by the NVWA has revealed that containers with five drawers instead of four or less have a negative impact on animal welfare. There are more injuries, presumably because the containers with 5 drawers are too high; the broilers are lifted or swung upwards to be placed inside the highest drawer.. The animals then have an increased risk of bumping their wings against the edges or other parts of the container. The weight of the animals also plays a role: the heavier the animals, the harder it is to fill the container without risk of injury. Catchers that are not tall will have the most difficulty filling the topmost drawer in a careful manner.

- ✅ Make sure containers are not too high (four drawers maximum) to prevent broilers have to be swung upwards to be placed inside the highest drawer.

### Broken crates and containers

To avoid injury it is essential that crates, crate doors and containers are well maintained and replaced in good time. During inspections Eyes on Animals regularly sees crates and containers that are broken and, because of this birds become injured or fall out. Think of sharp points, broken or bent mesh/bars and damaged floors.





Broken and bent crates and containers create a risk of injury and chickens escaping

One factor that accelerates the wear and tear of the crates, is that they are sometimes stood on by catchers in order to reach birds perching up high.



Crates are used by catchers to stand on and will probably get damaged more quickly by this

- ✅ Make sure that crates and containers are replaced or repaired in good time.
- ✅ Design crates and containers such that doors can be easily removed and replaced.
- ✅ Do not stand on the crates.

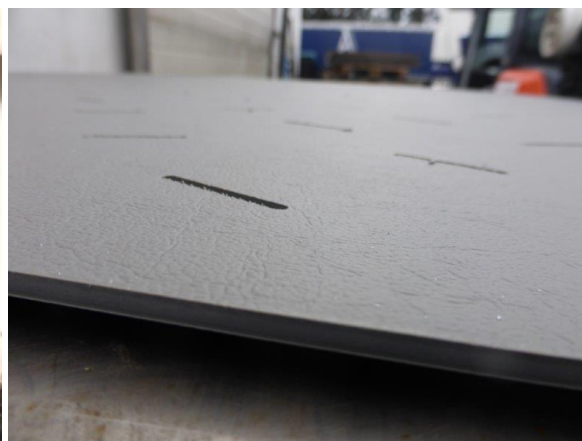
## Floors

The floors of the crates and containers can become very dirty from the faeces of chickens, especially during long-distance transport. This causes the birds to slip and slide and get wet, which can cause injuries and brings an increased risk of hypothermia. By making the floor anti-slip, this slipping and sliding can be reduced.



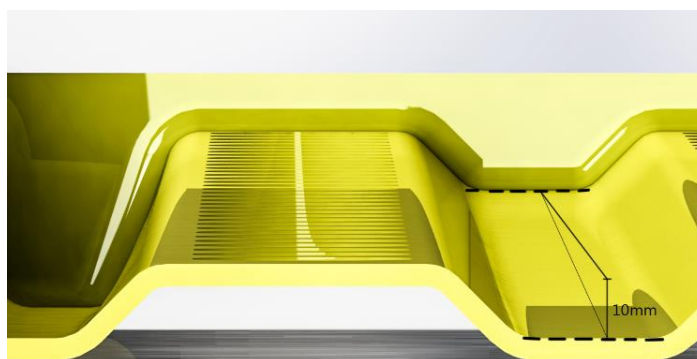
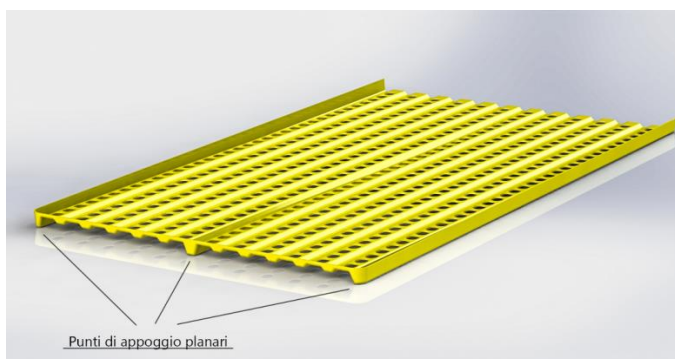


Dirty floor in a Dutch laying hens transport en route to Poland



Anti-slip floor with some drainage.

The Italian company Giordano produces tailor-made anti-slip flooring which can be inserted into the crate or container. There is a drainage system in the floor in order to ensure that faeces can run away, do not leak downwards and good ventilation can be provided.



Insertable floor for crate or container. © Giordano

- ✅ Make the floor anti-slip so that chickens do not slip and slide
- ✅ To reduce costs, a non-slip floor can be inserted into the crate or container so that slipping and sliding is prevented.

## Access doors

European Regulation No. 1/2005 states that animals during transport must be accessible for inspection and care. In addition animals, if they are injured during transport or get sick, they must get first aid as soon as possible or be put out of their suffering. In practice Eyes on Animals rarely sees poultry crates or containers with access doors. This means that birds that are trapped, injured or lying on their backs and cannot get up, cannot be helped at all during transport. The following photos of birds that were seriously suffering during transport and could not be accessed to be helped were taken during our inspections.



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If chickens are lying on their back, they will not be able to get up. Without access doors these chickens will die.



Animals that are stuck or dying cannot be put out of their misery if there are no access doors.

Plastic manufacturer Coevorden has, after hearing the concerns about lack of access from Eyes on Animals, designed a crate with an additional door on the side. Thanks to this there is at least access to the birds in the outer rows of the truck.





Crates with access doors from Plastic manufacturer Coevorden. A large Dutch poultry transport company now uses them.

The company Meyn has now also designed containers with access doors for broilers.



Containers from Meyn with access doors

Ideally a poultry truck should be built so that there is access to all the chickens, not just those in the outer rows. Eyes on Animals has seen such a truck in Turkey. This truck had a passage in the middle so that the driver could walk through if necessary. We've also seen a similar design for transporting rabbits in Hungary.





Truck with passage in the middle, allowing access to all the animals. Left: poultry Right: rabbits

### Loading through side door

In Germany, sometimes crates with side doors are used. As a result, there is access to the birds on the side of the truck (see also the section on access doors). In addition, they can be loaded through the side doors. Loading through the side door has the advantage that the crates no longer have to be stacked after loading, thereby avoiding the risk of body parts getting stuck or being crushed in between the crates during stacking.

### Extreme temperatures

The temperature comfort zone of birds varies greatly between types. Thus, the temperature comfort zone in broiler chickens and well-feathered young hens lies between 10-15 °C while for “spent” hens, who are often less well feathered, it lies between 22-28 °C. Spent laying hens are very susceptible to cold stress while broilers are more likely to experience heat stress.

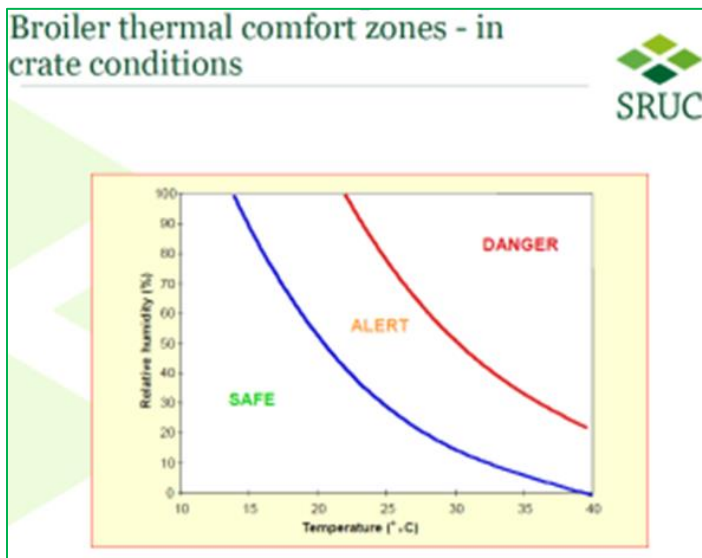
### Heat stress

If poultry trucks are stationary, or when loaded crates and/or containers are standing in the waiting room of the slaughterhouse, heat stress can easily become a serious problem. If there is no slipstream or good ventilation, or if the curtain on the truck is too thick then it soon becomes too hot inside the crates and containers. It is known that mortality among the birds increases in the summer, and during long waiting times. But also in other seasons heat stress can be a problem, especially for broilers and turkeys.



If chickens are suffering from heat stress, they pant (left picture) and, if possible stick their head out of the crate or container (right photo). Right photo: © Animals Angels

In addition to the temperature, the air humidity is also a major factor during the onset of heat stress. At high humidity, a temperature of 20 degrees for broilers can already be very dangerous.



Relationship between temperature, humidity and heat stress

Birds in the middle and the front of the poultry truck are most at risk of heat-stress. In these places the air circulation is, in fact, the lowest and thus the temperature and humidity increases in these areas most rapidly. The loading density of the crates and containers situated in these areas should be reduced in order to provide for better air circulation. Also, the middle row should be left empty in order to allow for ventilation.



Top view truck: front and middle are the warmest. Drawing: Dr. Rabitsch

There are several options to improve the air flow in a truck. For example, fans may be mounted on the side of the truck, use can be made of a roof that can be raised and vents can be placed in the roof, so that trapped warm air can be released to the outside. Slaughterhouses should encourage, or demand, that transport companies which deliver birds to them apply these various measures.



Truck with roof that can be raised and air vents in the roof to allow trapped warm air to exit.

If poultry trucks have to wait outside, shade and mobile industrial fans should always be available.



Fans to improve air flow in stationary vehicles and trees for shade. © Storteboom

In Turkey Eyes on Animals has seen a truck with a passage in the middle. This design can contribute to better air flow and reducing heat stress. We have also seen this design in trucks which are used for the transport of rabbits in Hungary.





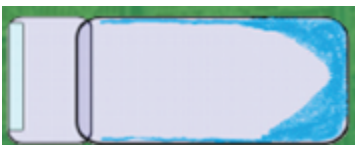
Truck with passage in the middle to improve air flow. Left: poultry Right: rabbits

Ensure that transport companies- during hot days – significantly reduce the loading-density of the crates or containers so that heat stress is avoided. Lower loading densities are particularly important in the center of the truck and by leaving the crates in the middle row empty.

- ✓ Avoid long waiting times at the slaughterhouses.
- ✓ Provide large mobile fans to improve air circulation for birds on poultry trucks having to wait.
- ✓ Make sure that shade is also available for trucks parking outside. Trees provide both wind and shade.
- ✓ Obtain large fans for the waiting room of the slaughterhouse, so that the air circulation in stacked crates or containers is adequate.
- ✓ Make sure that the transport companies transporting birds use modern trucks with a roof that can be raised and which has vents. Thus trapped heat and humidity (which is produced by the chickens) can at least exit.

## Cold stress

Birds at the rear and on the side of the poultry truck are most at risk of hypothermia. Laying hens are more susceptible to hypothermia than broilers, because they have very little fat stored in their bodies. For laying hens it is recommended that the temperature never to go below 12 degrees in order to prevent serious discomfort and even death by hypothermia. The temperature at which spent laying hens feel comfortable is between 20-28 °C because they often have poor plumage.



Top view Truck: birds at the rear and side are most at risk of hypothermia. Drawing: Dr. Rabitsch

In cold weather a thick curtain that is sufficiently long and wide to protect all birds should be used. Also, this curtain is important for protecting chickens against rain and cold winds, particularly when it is cold.



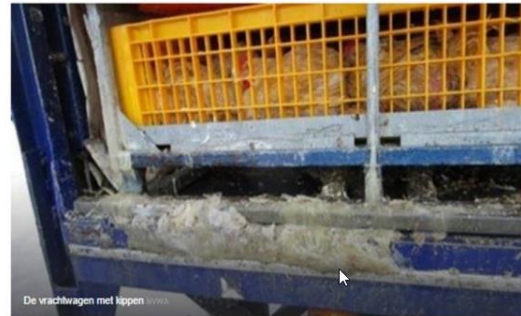
If chickens are wet, they run an increased risk of hypothermia because they have few fat reserves and therefore they should not be transported.



Left: curtain not securely attached during cold weather

### Kippen doodgevroren tijdens transport

© VR 8 JANUARI, 21:58 BINNENLAND, ECONOMIE



De vrieskou van afgelopen week heeft het leven gekost aan zo'n 200 kippen die van Polen naar een Nederlands slachthuis werden vervoerd. De dieren vrozen dood tijdens het transport.

Right: news report of birds found frozen to death



Left: If birds are wet, it is especially important to protect them from cold. Right: this curtain is not long enough.

- ✅ Make sure that the birds are protected by means of a good curtain of the correct size.
- ✅ Make sure the temperature in crates for laying hens is never lower than 12 degrees to prevent hypothermia.

### Dual purpose curtains

Because the weather can sometimes be very changeable, it is recommended to drive with a dual purpose curtain. This is a double curtain permanently attached to the truck: a thick curtain for cold weather and net curtain for the slightly warmer days. Depending on the weather the curtain can be quickly changed during transport. Both types are permanently available.



Dual purpose curtain from the Cuppers company to allow the curtain to be quickly changed according to the ever-changing weather conditions.

## Container Systems and improvements

### Meyn

The containers are one tray wide and four or five trays high. At the start all the trays are pushed back except the bottom one. The bottom tray is loaded, and then the tray above it is slid forward and filled.



### Positive points

- The containers have drawers with access doors so that assistance can be given to birds that are later found injured or sick.





- There are no birds in the tray that is slid forward, making the work of the chicken catcher easier, so this reduces fatigue and fewer mistakes are made.
- The tray offers much space to load the birds. This reduce the risk of birds getting injured.

### Risks

- Five trays is too high. The higher the containers, the more injuries and stress are caused to the chickens. The chickens have to be lifted. This is not just harder work, but also the chickens will be pushed against each other or be swung into the container, thereby increasing the risk of dislocations and fractures. These chickens often bump against the containers. We recommend to make the containers maximum 4 trays high.
- Lack of space in between the birds and the floor of the tray above, leads to heads getting crushed when sliding the trays shut or the tray hitting bird's heads. Because metal is hard birds will get easily injured when hit.



- There are two different floors: a non-slip plastic floor and a somewhat smoother plastic floor. The last one creates risks of birds slipping and injuring themselves.
- If the metal tray gets damaged or becomes bent through frequent use, they become very difficult to slide open or shut. This problem is exacerbated when a bird gets stuck and requires help to be freed. The edges of the trays are very sharp, which can cause injury to both birds and catchers.



## Linco

The container is two trays wide and five tray high. At the start all the trays are pushed backwards except the bottom one. The bottom tray is loaded, and then the tray above it is slid forward and filled. Etc.



### Positive points

- There are no birds in the tray that is slid forward, making the work of the chicken catcher easier, so this reduces fatigue and fewer mistakes are made.
- The trays are made of plastic. Plastic is lighter than for example metal and therefore easy to use. On the other hand it is easier break, so maintenance is important.

### Risks

- Five trays is too high. The higher the containers are, the more injuries and stress is caused to the chickens. The chickens always have to be lifted. This is not just harder work, but also the chickens will be pushed against each other or be swung into the container, thereby increasing the risk of dislocations and fractures. These chickens often bump against the containers. We recommend to make the containers a maximum of 4 trays high.
- There is no access to the animals once the containers are on the truck. Animals that are found injured or sick cannot be assisted or put out of their misery during transport or while waiting at the slaughterhouse.
- Because the space between the trays is limited the heads of birds can get caught, crushed or hit when sliding them forward, leading to injuries, suffering or even death.





## Anglia autoflow

The container is three trays wide and four trays high. The tray is slid out of the container, loaded with chicken and pushed back again.



### Positive points

- The trays are made of plastic. Plastic is lighter than for example metal and therefore easier to use. On the other hand is easier break, so maintenance is important.

### Risks

- There is no access to the animals once the containers are on the truck. Animals that are found injured or sick cannot be assisted or put out of their misery during transport or while waiting at the slaughterhouse.
- Since the trays are filled with chickens when they are slid out, they are heavy when they have to be pushed closed again. They weigh about 50 kilograms. Therefore, opening and closing is not easy. Also if a chicken is trapped when closing the tray, it is not easy to open the tray again. A better system is one in which empty trays are loaded when in the closed position, instead of first being loaded, and then being pushed back into position.

## Stork

Their standard container is two trays wide and four trays high. Their newer containers are one tray wide, but we have not seen them in practice. The following concerns the older containers. Loading is from bottom to top. The lids of the trays are hinged. For loading they are folded inwards. Once the tray is full, the lid (and load floor of the tray above) is folded back out again.







### Positive points

- Loaded drawers do not need to be slid backwards or forwards, making the work of the chicken catcher easier, so it reduces fatigue and fewer mistakes are made.
- The trays are made of plastic. Plastic is light and therefore easier to use than most other materials, like metal. On the other hand plastic breaks more easily, so maintenance is important.



Maintenance is important

### Risks

- There is no access to the animals once the containers are on the truck. Animals that are found injured or sick cannot be assisted or put out of their misery during transport or while waiting at the slaughterhouse.
- Heads or wings of the birds can get caught and crushed when bringing forward the lid (which is the floor of the tray above).



Photo by Andrzej Skowron  
(c) ISB/AWF and EOPA