



**Eyes on
Animals**

Watching
out for their
welfare



Cracks in the Crate

**Routine abuse of the EC 1/2005 legislation
during the transport of chickens.**

Pei HongYin and Lesley Moffat

Table of contents

i.	Personal comments.....	2
ii.	Summary	3
iii.	Background	4
iv.	Pertinent legislation to chicken transport	5
v.	Current transport conditions and related violations	8
	a) Avoid causing injury and suffering and ensure safety	8
	b) Floor surface	16
	c) Accessibility.....	19
	d) Headspace and ventilation	25
	e) Emergency.....	27
vi.	Positive aspects.....	28
	a) Avoid injury and suffering and ensuring safety	28
	b) Ventilation:.....	30
	c) Floor surface	31
	d) Accessibility.....	32
vii.	Recommendations.....	33
	a) Safety of the containers	33
	b) Floor surface and ventilation of the containers.....	34
	c) Accessibility of the containers	35
viii.	Conclusion	39
ix.	Reference and acknowledgements	40

i. Personal comments

As a Chinese student studying Animal Health and Welfare at CAH Dronten (NL) for my bachelor degree, my main objective is to learn about different animal-transport and slaughter systems used in European countries and later applying the welfare-friendlier examples to improve farm-animal welfare in the Chinese agriculture system.

I applied to be a volunteer inspector during my working placement with Eyes on Animals. My time with Eyes on Animals is part of my academic program in The Netherlands. Chickens are my favorite animal, this was my incentive to conduct research for Eyes on Animals about the transport conditions for chickens (broilers and spent laying hens). My task was to compare the advantages and disadvantages of different transport containers being used by chicken transport companies and identify any violations to the EC 1/2005 on the protection of animals during transport. I also considered alternative transportation methods that would better protect the welfare of the birds and be in compliance with the EC1/2005 requirements.

Although my time with Eyes on Animals is only temporary, it is my honor to have an inspector of EonA. I am trying to raise peoples' awareness about chicken-welfare in European countries and bring back the experience gained to China. I want to be able to give advice in the future to the Chinese chicken industry too, that is practical and realistic so that they will actually adopt it. In this way animals will directly benefit from the improvements and their suffering can be reduced.

ii. Summary

Due to a lower economic value than other large livestock animals, chickens often receive much less care during transport. A tolerance level of 1%-2% mortality during transport is accepted within the poultry transport industry and even among official veterinarian inspectors. Such a high mortality level in the pig or cattle transport sector would create a scandal and not be tolerated. Additionally, this figure does not cover all the birds arriving with crushed wings, trapped feet, lying on their backs without being able to turn upright and broken bones. The level of chicken suffering during transport is shockingly high. There is an urgent need to improve their transport conditions and see to it that they too receive the protection set out for them in the EC 1/2005 legislation.

The focus of this report will be on the containers used for chicken transport; plastic crates and the drawer-system. The plastic crates are smaller and commonly used for the transport of spent hens. They can be easily put into the laying-hen barn during loading, even if a cage-system is used. These crates are also easier for the catching teams to load laying hens into. Due to the active character of layers, these small crates with small openings are easier to put the layers in and shut the door before they jump out. Another type of container is called the drawer-system which is commonly used for broilers. They are bigger and composed of plastic drawers and metal frames. Forklifts are used during the loading and unloading of these drawer units onto the truck. Due to the broiler farms having more open space and because of the relatively calm character of broilers (normally due to darkness and limited mobility caused by lameness, heaviness or high metabolism), the drawer-systems are widely used for the transport of broilers. Further, there are different designs within the different containers. For example, some crates have one door on the top while others have two, with an extra door on the side. Some crates have horizontal-sliding doors and others have doors that can be opened upwards.

Admittedly, such a large number of small animals will always be difficult for transport companies and catchers to load and transport without causing stress. Nevertheless, with a change in the containers' design, chicken welfare during transport can be greatly improved.

At the end of this report we will recommend changes to the design of the containers, using a mix of some "positive" examples taken in the field and our own ideas.

iii. Background

There are two types of chickens used on farms, broilers kept for meat production and laying hens for producing eggs.

Laying hens are sent to slaughter once they are no longer profitable (producing insufficient number of eggs); these are called “spent hens”. Genetically, the laying hens are smaller (little meat on them) than birds selected for meat production. Now also useless for egg production, these “spent” hens end up with very low economic value. Rumor among the industry is that these spent hens are sometimes not even worth the cost of transporting them to slaughter. Is this why the spent hens are arriving at slaughterhouses with such high mortality rates and bone fractures? Is it because of rough handling, harvesting and poor transport conditions? The percentage of fractures among spent laying hens may reach 50% in one flock and they are suffering a mortality rate averaging 1.013% during loading, transport and unloading [1]. Are stakeholders not paying enough attention to their welfare, and routinely violating the European transport legislation?

Due to the interests of ensuring that meat on the broilers is in good condition, it seems that more concern is given to their transport conditions. However, due to increasing consumption of chicken meat, chickens have been genetically selected for extremely fast growth and large breasts causing a high proportion of broilers with gait abnormalities which cause further suffering on the slippery floor in the containers. High-metabolic rate and heat stress caused by poor ventilation and high stocking density during transport may also cause bird mortality [2]. In the field, we have also observed very sloppy loading conditions of broilers, with many found lying on their backs and not able to right themselves up again and others trampled.

In Council Regulation EC 1/2005 there is no discrimination made against animals with low economic value- all live vertebrate animals have the right to be protected during transport and fall under the legal requirements.

Over the past year, Eyes on Animals has been visiting checking on poultry trucks in The Netherlands, Belgium and Germany. We focused our observations on the many different types of containers being used and on the handling of the birds during loading and unloading from these containers.

[1] Mortality Rates in Poultry Species and Categories during Transport for Slaughter
ACTA VET. Brno 2007, 76: S101–S108

[2] Poultry diseases, 2008, Mark Pattison, Paul F. McMullin, Janet M. Bradbury, Dennis J. Alexander P98–P99

iv. Pertinent legislation to chicken transport

The European Union has established comprehensive regulations to protect the health and welfare of animals kept for meat and dairy production. Council Regulation (EC) No 1/2005 on the protection of animals during transport and Council Directive (EC) 98/58 concerning the protection of animals kept for farming purposes are both essential references. During our inspections in the field, we compared what we observed with the legal requirements in order to identify any non-compliance during the transport of broilers and spent laying hens. We also used the requirements to propose new, legally acceptable and reasonable alternatives to improve the welfare of chickens during transport.

The following pieces of EU legislation are all relevant to our inspections of chicken transports:

EC 1/2005 on the protection of animals during transport

Article 3

General conditions for the transport of vertebrate animals including chickens

No person shall transport animals or cause animals to be transported in a way likely to cause injury or undue suffering to them. In addition, the following conditions shall be complied with:

- (c) The means of transport are designed, constructed, maintained and operated so as to *avoid injury and suffering and ensure the safety* of the animals;
- (d) The loading and unloading facilities are adequately designed, constructed, maintained and operated so as to avoid injury and suffering and ensure the safety of the animals;
- (e) The *personnel handling animals* are trained or competent as appropriate for this purpose and carry out their tasks *without using violence or any method likely to cause unnecessary fear, injury or suffering*;
- (f) The transport is carried out without delay to the place of destination and the *welfare conditions of the animals are regularly checked and appropriately maintained*;

Annex 1 Ch I

Fitness for transport

1. No animal shall be transported unless it is *fit for the intended journey*, and all animals shall be *transported in conditions guaranteed not to cause them injury or unnecessary suffering*.

4. When animals *fall ill or are injured during transport, they shall be separated* from the others and *receive first-aid treatment* as soon as possible. They shall be *given appropriate veterinary treatment and if necessary undergo emergency slaughter* or killing in a way which does not cause them any unnecessary suffering.

Annex 1 Ch II

1. Provisions for all means of transport

1.1 Means of transport, containers and their fittings shall be designed, constructed, maintained and operated so as to:

- (a) *Avoid injury and suffering and to ensure the safety* of the animals;
- (d) *Prevent the animals escaping or falling out* and be able to withstand the stresses of movements;
- (f) *Provide access to the animals* to allow them to be inspected and cared for;
- (g) Provide a *flooring surface* that is *anti-slip*;
- (h) Present a *flooring surface* that *minimizes the leakage of urine or faeces*

1.2 Sufficient space shall be provided inside the animals' compartment and at each of its levels to ensure that there is *adequate ventilation above the animals* when they are in a naturally standing position, *without on any account hindering their natural movement*.

5. Additional provisions for transport in containers

5.2 During transport and handling, containers shall always be kept upright and severe jolts or shaking shall be minimized. *Containers shall be secured so as to prevent displacement* due to the movement of the means of transport.

Annex 1 Ch III

1. Loading, unloading and handling

1.7 When *containers loaded with animals are placed one on top of the other* on the means of transport, the necessary precautions shall be taken:

- (a) To avoid, or in the case of poultry, rabbits and fur animals, to *limit urine and faeces* falling on the animals placed underneath;
- (b) To *ensure stability* of the containers;
- (c) To ensure that *ventilation is not impeded*.

2. During transport

2.6 *Sufficient ventilation* shall be provided to ensure that the needs of the animals are fully met taking into account in particular the number and type of the animals to be transported and the expected weather conditions during the journey. Containers shall be stored in a way which does not impede their ventilation.

Annex 1 Ch V

2. Other species

2.1 For poultry, domestic birds and domestic rabbits, suitable food and water shall be available in adequate quantities, save in the case of a journey lasting less than:

- (a) 12 hours disregarding loading and unloading time;

Annex 1 Ch VII

E. Space allowances for poultry

Densities applicable to the transport of poultry in containers

Minimum floor areas shall be provided as follows:

Category: poultry other than day-old chicks: weight in kg	Area in cm ² per kg
< 1.6	180 --- 200
1.6 to < 3	160

These figures may vary depending not only on the weight and size of the birds but also on their physical condition, the meteorological conditions and the likely journey time.

v. Current transport conditions and related violations

Containers are to:

a) Avoid causing injury and suffering and ensure safety

EC 1/2005 Article 3

No person shall transport animals or cause animals to be transported in a way likely to cause injury or undue suffering to them. In addition, the following conditions shall be complied with:

(c) The means of transport are designed, constructed, maintained and operated so as to avoid injury and suffering and ensure the safety of the animals;

(d) The loading and unloading facilities are adequately designed, constructed, maintained and operated so as to avoid injury and suffering and ensure the safety of the animals;

EC 1/2005 Annex 1 Ch II

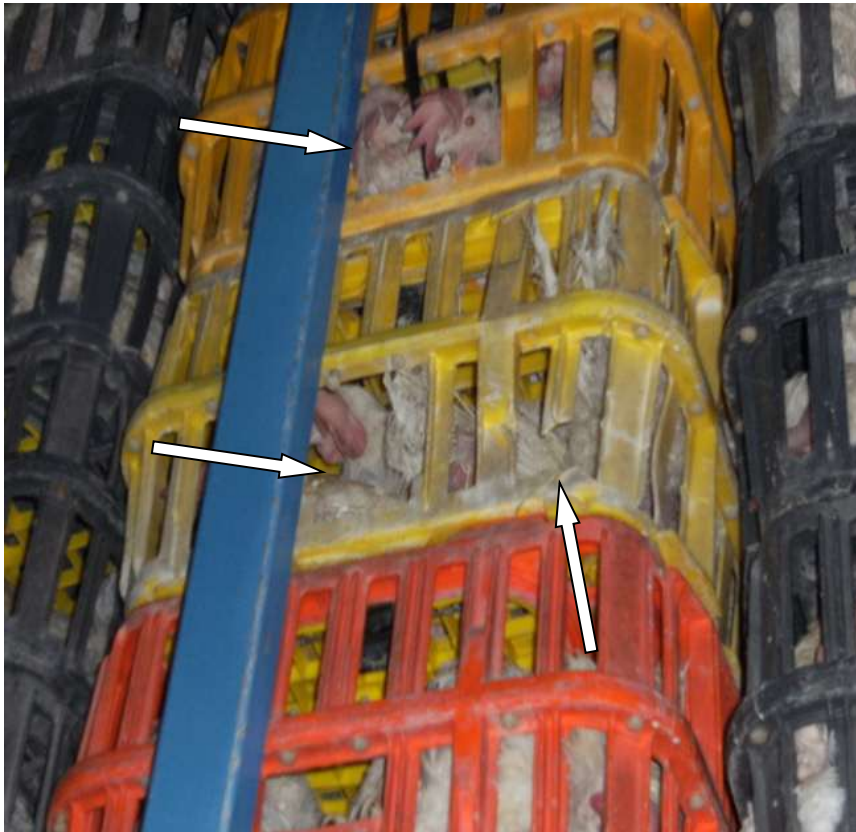
Means of transport, containers and their fittings shall be designed, constructed, maintained and operated so as

(a) Avoid injury and suffering and to ensure the safety of the animals;

(d) Prevent the animals escaping or falling out and be able to withstand the stresses of movements;

Safety is one of the basic minimum requirements animals have a right to during transport. A well-constructed and maintained drawer-system or crate must be able to protect the chickens inside from the weight and movement of the other containers during transport. It must be solid enough to support the weight of the other crates loaded on the top in order to avoid collapsing and crushing all the birds inside. It must also avoid that animals can fall out onto the road- getting hurt and also posing a danger to other users of the road. For these reasons, broken crates with large openings must be immediately removed to be either repaired or replaced.

Broken crates



Broken crates with spent-laying hens heading to a slaughterhouse.

When a crate is broken, its entire structure is weakened and can easily cave-in under the weight of the crates on top. Large openings also risk that animals fall out. During our inspections of poultry transport trucks, we observed many broken containers.



Poor attempts to fix broken crates



This is a violation to EC 1/2005 Annex 1 Ch.2 1, 1.1, (d) And Article 3, (c) and (d)
Another example of plastic crates with broken parts and bent bars.



A truck with a large number of broken crates was observed repeatedly in 2011 and 2012 by Eyes on Animals. Many spent laying hens were trying to escape from the crates, one eventually did fall out.





Members of a catching team found standing on the piled plastic crates during loading, which may be the cause of some crates breaking. As the crates have large air-holes in the top, some birds have their heads or wings sticking out, risking being crushed by crates stacked on top or by the feet of this worker.

Broken drawer-system

Drawer-systems are commonly used for the transport of broiler chickens. The drawer-systems are composed of metal frames and plastic drawers. Although there is an economic interest to transport broilers in a manner that does not compromise their “meat quality” we still observed broken drawer-systems during our inspections, risking the birds’ safety and welfare.



Metal containers were still being used despite being damaged, two big gaps were formed by deformed wire-grid, risking animals getting caught and injured.

This is in violation of EC 1/2005 Annex 1 Ch.2 1, 1.1, (d)



The broken and sharp wire may cause injury when the broilers are moving or flapping around inside.

This is a violation to EC 1/2005 Annex 1, Ch.2, 1, 1.1, (a)
And Article 3, (c) and (d)

Injuries and suffering caused by design and operation of containers

Because of the large number of chickens in today's modern barns, industry desires that loading be done quickly in order to remain efficient. Unfortunately, at this speed injury cannot be avoided. Hens and broilers are grabbed, often several at a time by the legs or wings, and shoved into the transport containers. The doors of the crates are shut quickly, with little time given to be sure no wings, feet or heads are sticking out. Drawers of the container units are also quickly pushed shut, risking injury. Once injured, chickens receive little attention and rescue is impossible because of the faulty design of the containers- there is no possibility to access the birds during transport.



A dead spent-laying hen with its neck crushed between the crates. The large air-holes in the tops of some crates means that birds can stick their heads out, becoming fatal when the next crate is stacked on top.

©PMAF



Another example of poor design; the head of this bird was crushed by the floor of the drawer above when it was pushed closed. Giving the birds more vertical space and installing solid barriers between each drawer would prevent such accidents.

This is in violation of EC 1/2005 Article 3, (c)



This broiler, like many others, had his toes between the floor surface and the metal door. Opening this metal door once at the plant could result in the crushing of his toe.

b) Floor surface

EC 1/2005 Annex 1 Ch II

Means of transport, containers and their fittings shall be designed, constructed, maintained and operated so as

(g) Provide a flooring surface that is anti-slip;

(h) Present a flooring surface that minimizes the leakage of urine or faeces

1.2 Sufficient space shall be provided inside the animals' compartment and at each of its levels to ensure that there is adequate ventilation above the animals when they are in a naturally standing position, without on any account hindering their natural movement.

According to EU regulation, floor surface for the animals during transport should be designed properly in order to minimize the leakage of faeces or urine and be anti-slip. It is difficult to design a perfect floor surface in chicken containers; a solid floor with no holes in it may well prevent the faeces from leaking onto the chickens below but will hinder air flow, resulting in inadequate ventilation. However, giving birds more vertical space- increasing air flow above their



heads- will permit a more solid floor. The creation of many small holes can allow air circulation meanwhile still preventing leakage of faeces. Anti-slip is particularly important for broilers. Because broilers are chest-heavy, many have difficulty standing up and walking. A slippery floor makes matters much worse, resulting in them breaking their legs or falling in an unnatural position, causing stress and pain.



Little round holes in the surface of this drawer-system may reduce the leakage of faeces but such a smooth surface is not welfare-friendly as the birds slip. Once broilers slip on their side, they have extreme difficulty to stand back up.



These are violation to EC 1/2005 Annex 1, Ch.2, 1, 1.1, (g) (h) and 1.2

Some of the plastic crates for spent laying hens have big air-holes in the floors. This had no effect on protecting the animals below from the leaking faeces from the chickens stocked in crates above.



This spent-laying hen is from one of the lower plastic crates, she was covered in broken eggs and faeces.

This in violation of EC 1/2005 Annex 1, Ch.2, 1, 1.1, (h)

c) Accessibility

EC 1/2005 Article 3

General conditions for the transport of vertebrate animals including chickens

No person shall transport animals or cause animals to be transported in a way likely to cause injury or undue suffering to them. In addition, the following conditions shall be complied with:

(c) The means of transport are designed, constructed, maintained and operated so as to avoid injury and suffering and ensure the safety of the animals;

EC 1/2005 Annex 1, Ch II,

4: When animals fall ill or are injured during transportation, they shall be separated from the others and receive first-aid treatment as soon as possible. They shall be given appropriate veterinary treatment and if necessary undergo emergency slaughter or killing in a way which does not cause them any unnecessary suffering.

EC 1/2005 Annex 1 Ch II

1. Provisions for all means of transport

Means of transport, containers and their fittings shall be designed, constructed, maintained and operated so as

(a) Avoid injury and suffering and to ensure the safety of the animals;

(f) Provide access to the animals to allow them to be inspected and cared for;

The accessibility to animals during transport is one of the most important aspects of ensuring their welfare. It allows one to inspect the animals thoroughly but also provide food, water, medical care or help for animals that fall sick or become injured during the journey. Accessibility to animals is also vital during road accidents, enabling the animals to be released quickly.



Trucks used for larger animals have side-access door as required by EC 1/2005.

Thanks to access doors, this sick cow could be treated on board a vehicle at the BG/TK border.



Access doors used to feed and water each animal properly.



Access doors are vital to inspect each animal.

Access doors are vital to treat or humanely slaughter animals on board that are seriously suffering.

During all of our investigations in the field, we did not once observe a chicken truck where there was access to the animals. All of the hens and broilers were prisoners to their containers during the journey. This was particularly frustrating because many birds were injured or stuck on their backs and could have easily been helped if there had been access.

We observed many trucks using old plastic crates with door-openings found only on the top of

the crate. Once stacked, the birds loaded inside were completely inaccessible. The drawer container system for the broilers has opening doors on the sides but they are loaded such that the doors face inside instead of outside the truck. This is in violation to the EC 1/2005 which specifies that the design and construction of the crates must provide access to the animals to allow them to be inspected and cared for.



Large number of plastic crates stacked on the top of each together. There is no access to the birds at all during transport and even while in the lairage at the plants. Injured and sick ones cannot be treated or receive help, dead ones cannot be removed.



Once they are loaded onto the truck, broilers in the drawer containers are also inaccessible.
 This is in violation of EC 1/2005 Annex 1, CH2, 1, 1.1, (f)



This Dutch spent-laying hen was observed on a Belgium truck on its way to slaughter. Her wing was crushed by the door of the crate. (The crates above had fallen (!) so that we could, in this case, release her wing. Under normal circumstance, this hen would have been left to suffer during the whole journey as it would have been impossible to access her with the crates piled on top)



Birds being trampled to death cannot be helped during transport.



A number of broilers were being trampled or were stuck lying on their backs, unable to get back up, but it was impossible to access the birds to help them.

These are violations to EC 1/2005 Annex 1, Ch1, 4



In the drawer-system, the metal door is kept shut-tight by a rubber flap. Broilers inside are not strong enough to push it open, but a human could. It is a good design, but unfortunately these doors won't face the outside of the truck during transport, which means that there is still no access to broilers in the drawer-system either.

d) Headspace and ventilation

EC 1/2005 Annex 1 Ch II

1. Provisions for all means of transport

Sufficient space shall be provided inside the animals' compartment and at each of its levels to ensure that there is adequate ventilation above the animals when they are in a naturally standing position, without on any account hindering their natural movement.

According to EC 1/2005, all vertebrate animals are to be given enough headspace to permit them to stand up in a natural position and without hindering air circulation when doing so. Once again, chickens seem to have been left out from receiving this benefit. Most chickens cannot stand up during transport; the containers do not provide adequate vertical space. This also causes high-mortality rates in the summer, when ventilation is crucial but even more inadequate due to the lack of headspace.



A hen is approximately 38cm when she is standing in her normal position while the height of most plastic crates we observed was only 30cm. The absence of headspace restricts the chicken's normal behaviour and greatly impedes the air flow.



The broilers in the drawer-systems are also not able to stand up in their normal position and air flow above their heads is severely limited.

This is a violation to EC 1/2005 Annex 1 Ch II, 1, 1.2

e) Emergency

Livestock-truck accidents are unfortunately quite common. When the accident involves poultry it is a true disaster. On average 6,000- 8,000 birds are loaded per truck and due to the absence of side-doors in the plastic crates, it takes hours to get the birds out. By then most birds are dead from suffocation. Drawer-systems with doors on one end are slightly advantageous to plastic crates with only top doors. When fallen on their side, human rescuers can access some of the doors of the drawers to release at least those animals inside quickly.



When a poultry truck turns on its side, all the chickens fall on top of each other and most get trampled and suffocate to death. Access doors are vital during accidents in order to release the animals.

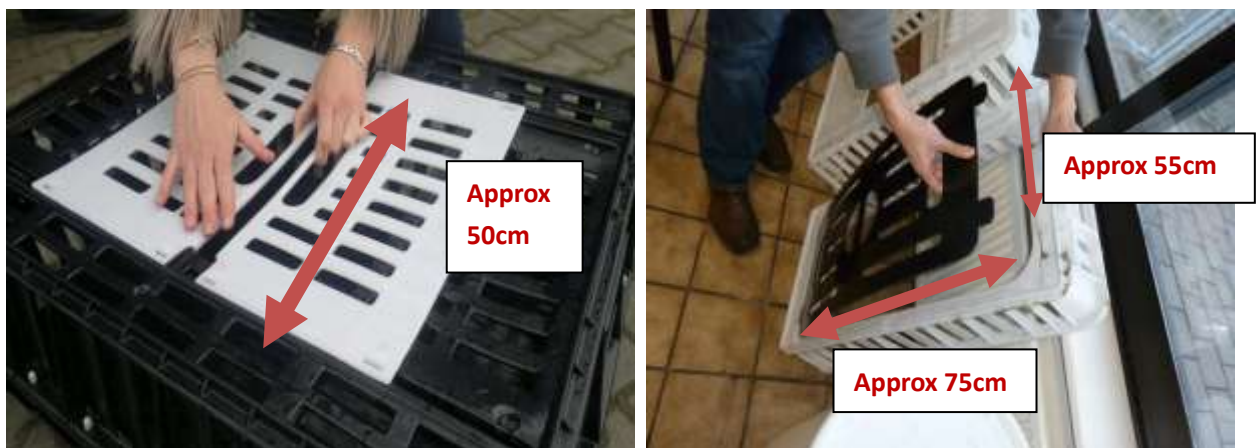
vi. Positive aspects

Disappointingly, the crates and drawer-systems we observed being used in practice did not fulfill all the EC 1/2005 requirements. However, positive aspects concerning safety, avoidance of injury, ventilation, floor surface and access were identified in some. By combining all the positive aspects and bringing in new ideas, it should be possible to create a new container that is in full compliance with the law and adequately protects the welfare of the chickens.

a) Avoid injury and suffering and ensuring safety

Plastic crates

The plastic crates seem to be safer for the transport of laying hens than the drawer-system. Hens are more active than broilers, they can jump and even fly a bit. This makes the drawer-system risky; when shutting the drawer some hens may jump out or get their head caught. As well, drawers can hold 35 birds, much more than crates which only hold between 12-15 hens, increasing the challenge of closing them into the container without some jumping out. Horizontal-sliding doors are better than ones opening upwards as there is less open-perimeter for the birds to get stuck when the door is shut-closed.



Drawer-systems

Although all of them seem the same, detail design is sometimes different.

The metal frame of the drawers consists of metal doors on one side. The width of the gaps between the doors and metal frame should be large enough to prevent limbs and heads from getting stuck but not so large that birds fall out.



The bird in the gap in this photo was fine. She was able to retract her head thanks to the gap being large enough.

b) Ventilation:



The “diamond” shape design of some plastic crates form gaps between them when piled, helping increase ventilation during transport. This is better than rectangle-shaped crates.

Crates with edges on the outside top and bottom are advantages as they can be piled one on top of the other and snap into place, avoiding the piled crates from falling over during transport.

The “diamond” crates, permitting more ventilation.



Rectangle-shaped crates maximize the floor surface, which is “efficient”. However, from an animal-welfare point of view, this design severely hinders ventilation during transport.

c) Floor surface



Floor of a crate

This crate has a solid floor with some anti-slip ridges preventing the chicken faeces from dropping into the crates beneath and giving the hens some traction.

Additionally, a solid-floor surface is much safer for the animals because there is no risk of the animals' limbs (heads, wings and feet) sticking out and being crushed by crates piled on top.

A few ventilation holes can be seen at the front and back end of the floor surface, which gives some air flow. But we still wonder if such solid floors are acceptable in because air circulation is very restricted. Increasing headspace however, which is necessary anyhow, will help this problem.



Floor of a drawer-system

The floor of this drawer-system has small holes as well as ridges. It not only prevents the chicken beneath from being covered with faeces from those above (normally, chicken faeces is semi-solid and thus would not fit easily through these little holes) but also allows air flow during transport. Additionally, the holes form a rougher surface that provides some traction for the broilers. This seems to be a good compromise between ventilation and prevention of leakage.

d) Accessibility

In every single case, we observed that accessibility to chickens during transport was not possible. This has been tolerated for so long that it seems to have become, wrongly so, the accepted “norm”. Transport crates and drawer systems in the future need to be designed with an access door facing outwards on the truck so animals inside can be accessed at all times.

Certain crates and drawer systems already have doors on the side. Their design can be used in the future, but it will be necessary to alter their width and length measurements, to still fit properly onto the flat-bed of the truck when access doors face outwards.



These crates are promising if they are stacked with their side-doors facing outward. The dimensions of the crates however would need to be changed so that the columns and rows fit onto the truck and, because one cannot have a middle row the crates must be deeper so that only two rows are needed. The width of a truck is 2.50m, so each row depth 1.10m leaving a 30cm open space between the two rows permitting extra air-flow. The height of each crate needs to also be increased so that the birds cannot only stand in their normal position, but so that one can inspect all birds inside and air-flow is optimal.

vii. Recommendations

a) Safety of the containers

According to the current situation, the stability of the containers is reasonable during normal transport conditions (not during accidents). Plastic crates can be piled and snapped into place on top of others. The edge on the top fits into the edge on the bottom of the crates. In terms of the drawer containers, due to the heavy weight and metal frame, stability can also be ensured.

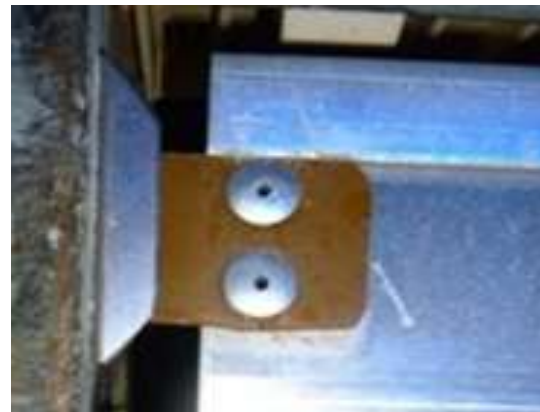
However, broken crates can still be found in use by several slaughterhouses and transport companies. **We suggest** that both plastic crates be checked regularly and never used with broken parts. Check the appearance of the crates every day and replace the broken ones by new ones as soon as possible.

For the drawers container system which are commonly used for transporting broilers. **We suggest** that the integrity and quality of the plastic drawers and wire-grid of the metal frame is checked and repaired regularly in order to protect chickens from becoming injured.





Secondly, the width of all gaps where birds can get their limbs and heads in should be correct: large enough to prevent chickens from getting stuck but not so large that birds can fall out. The gaps in the photo on the left are acceptable, but the one on the right is far too small, risking the toes being squished.



Thirdly, the metal doors on the metal frames should be shut tightly so that birds inside are not strong enough to push them open, but designed in such a way that a human can easily release it. These rubber flaps, seen on a Dutch truck, are good examples that work. However, it is important to have enough flaps per door (we recommend at least 3) and that they be regularly checked and maintained.

b) Floor surface and ventilation of the containers



We suggest the floor surface of the containers be designed properly in order to allow ventilation during transport, to minimize the leakage of faeces and to be anti-slip.

Admittedly, it is hard to find a balance between improving ventilation and reducing leakage. However, **we suggest** that small ventilation gaps on the floor surface of containers can be adopted for both broilers and spent laying hens, which not only prevents the leakage but also allows some air flow during transport.

The holes also help form a rougher surface, increasing traction. The floor must also have ridges in it, to make it anti-slip.

“Diamond” shape plastic crates are much better than rectangle ones as their shape increases ventilation. We also suggest that there never be a middle row of crates, not only because those animals would never be able to be accessed during transport but also because the ventilation in the middle row is always severely limited. Instead of a middle row, crates should be deep enough to fit onto the truck so that only two rows are needed but *still allowing* an open corridor to get air flowing in this area.

c) Accessibility of the containers

According to EU regulation, containers and their fittings shall be designed, constructed and operated to provide access to the animals to allow them to be inspected and cared for and to ensure the welfare of the animals during transport. So **we suggest that:**

Plastic crates and drawers

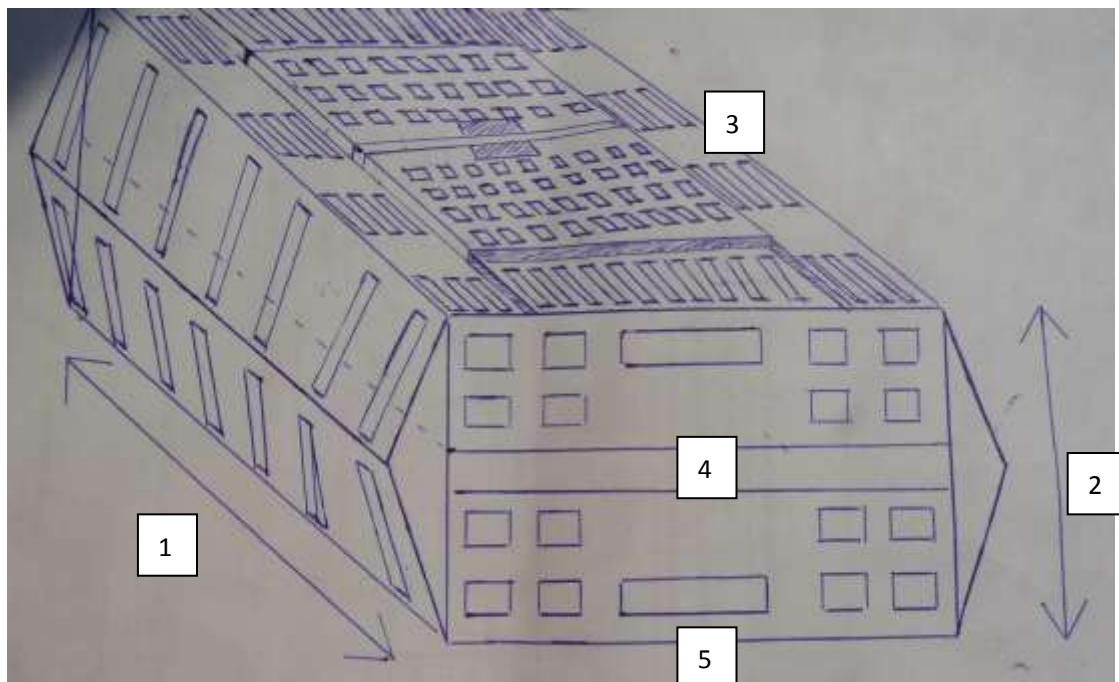
Each plastic crate and drawer should have an opening door on the side, exposed during transport so that one can access the birds inside at all times.



Currently, plastic crates with side doors already exist on the market and have been used by several slaughterhouses and transport companies. Sadly though, when loaded, these doors are no longer exposed, proving to be completely useless for access during transport. However, the design of this crate can be used as a good base for creating something new and better. Once the dimensions are altered on these crates, so that they can be loaded on the trucks with the doors facing outwards, a major improvement to the safety and welfare of chickens during transport will have already been achieved. It will mean that all the chickens and hens we observed injured, lying on their back, crushed and trampled could be helped and given immediate relief.

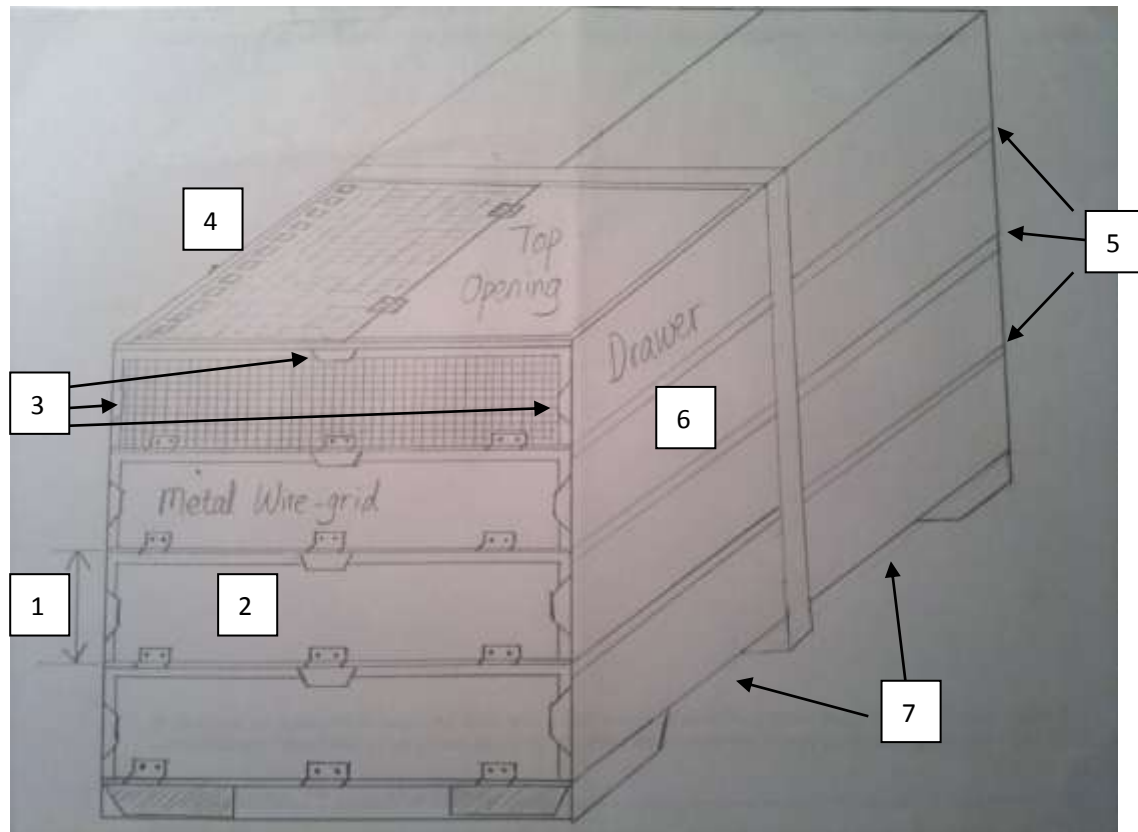
This is how one should see these crates when stacked on the truck- access doors nicely exposed so that the driver can access the birds, if necessary, during transport.

Conception of a better plastic crate



1. Deeper (to only need two rows on truck, avoiding any middle rows)
2. Higher to provide adequate headspace and ventilation
3. Top horizontal-sliding door with small air-gaps to prevent chickens' wings, limbs or heads getting crushed
4. Side-access door (only able to open from the outside thus chickens cannot accidentally get out)
5. Big air-gaps on the side-access door to optimize the air flow during transport
6. Floor surface (small air gaps)

Conception of a better drawer-system



1. Higher to provide adequate headspace and ventilation
2. Side-access doors are faced outside, use metal wire-grid to improve the ventilation
3. Rubber flaps, to ensure the birds inside cannot open the side-access doors
4. 4 pieces of top vertical opening doors made by plastic with small air-gaps.
5. Each layer above the drawers should have a fixed-ceiling (wire-grid, the holes should be small enough to prevent the chicken's head from becoming stuck)
6. Normal plastic drawers
7. Ridges of the bottom create extra ventilation gaps

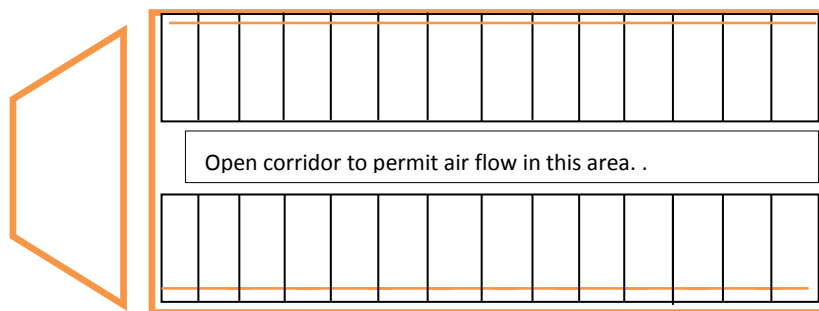
Drawer-container system

Although most drawer-systems already have doors (solid metal ones), they too prove useless for access during transport as the drawer-systems are loaded with the doors facing inside. However, exposing these metal *solid* doors outwards will pose new problems- ventilation would be far too limited. **We suggest** that the doors of the drawers be replaced with metal or plastic *grid* to allow ventilation and that the drawer-units then be loaded on the truck with these doors facing outwards. It is possible in certain cases that the dimensions of the drawers would have to also be slightly altered to fit onto the flatbed of the truck.

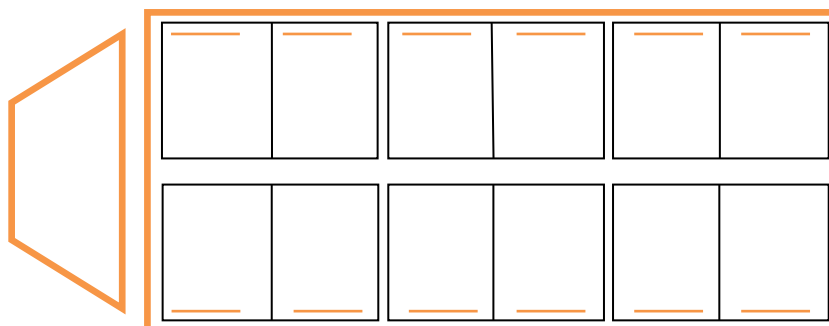
Another option is to create new, small access doors on the side of the drawers that are presently exposed. This may be preferable to the industry, as it would not require changing the dimensions of the drawer- systems.

Below is a diagram helping to demonstrate our conception of a better crate and drawer-system layout on the truck. — The orange line represents access doors.

New crate design layout:



New drawer system layout:



viii. Conclusion

The purpose of this report was to draw attention to the alarming situation for hens and broilers during transport. Alternative crate and drawer designs are needed to not only better protect the welfare of chickens but to also finally be in compliance with the EC 1/2005 legislative requirements.

We understand that changing even just small parts of the current design of the chicken containers (crates or drawers) can lead to very difficult consequences for the poultry industry. The chicken slaughterhouses nowadays are built according to the transport-container systems. From the conveyor built to the gas chambers to the automatic washers, everything is built around the dimensions of the containers.

Nevertheless, chickens have not been receiving the legal protection they deserve. The transport industry of other types of livestock have had to adapt and comply, and this resulted in them having to re-design their trucks. Vehicles transporting pigs, sheep and cattle had to be “modernized” and equipped with automatic water systems, automatic ventilators, temperature alarm systems and access doors on the side. This cost their industries a lot of money but, as it was the law, they had no choice and are now regularly inspected and penalized if they do not comply. It is only fair that the chicken-transport industry now also faces up to their legal responsibilities.

We understand that the chicken industry cannot change overnight. Some of the crates we observed however were already 20 years old and many were broken. Now is the perfect time to replace them, and it makes only sense that one does so with a new design that adequately protects the animals and will be accepted in the future too, when chicken-welfare inspections will hopefully increase.

Chickens, like larger livestock, are sentient animals and able to suffer. Of all the animal trucks Eyes on Animals has inspected, the most shocking ones are by far those with chickens on board. Too many were found trampled, stuck on their backs, with their wings and heads squished, no room to stand-up and suffocation from the lack of air circulation.... Official inspectors and in particular industry has the legal and moral responsibility to protect them from suffering. It is time that chickens are offered better transport conditions and that trucks transporting them be inspected for compliance with the EC 1/2005 in the same way as other livestock trucks. We encourage any improvements and look forward to hearing from the first chicken slaughterhouse or transport company ready to take the challenge!

ix. Reference and acknowledgements

We would like to thank the following people and organizations:

Thank you to all the managers of the slaughterhouses and transport companies that took the time to meet with Eyes on Animals over the past year, and with Pei during his apprenticeship. Thank you also to the veterinarians and truck drivers that gave us advice and shared their experiences with us. We would like to also show our gratitude to the Belgium highway police who stopped and checked on poultry trucks with us.

Reference

Council Regulation (EC) No 1/2005 of 22 December 2004 on the protection of animals during transport and related operations and amending Directives 64/432/EEC and 93/119/EC and Regulation (EC) No 1255/97

Welfare Quality Assessment Protocol for Poultry, 2009, Welfare Quality Consortium

Poultry Diseases, 2008, Mark Pattison, Paul F. McMullin, Janet M. Bradbury, Dennis J. Alexander

Poultry Health and Management, fourth edition, David Sainsbury, David Sainsbury

Transporting Poultry in a Humane Manner, Phillip J. Clauer, Poultry Extension Specialist , Animal and Poultry Sciences

Physiological Stress and Welfare of Broiler Chickens in Transit: Solutions Not Problems! M. A. MITCHELL*, and P. J. KETTLEWELL†

Heat produced by Broiler Chickens in a Commercial Transport Vehicle, P. J. Kettlewell, R. P. Hoxey, M. A. Mitchell