



Eyes *on*
Animals

Watching
out for their
welfare

Giving Milk a Good Shake

looking at better options in the way we produce dairy



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November, 2014

Preface

This report is dedicated to the dairy farmers who had the courage to try out new ideas and stood up for the welfare of the animals they raise. You are the leaders in pushing industry to become a gentler one, and your passion for the animals on your farms is what we admire the most.

This report is also dedicated to a very special cow, 6274, that touched us with her curious personality, her expressive eyes and vocalizations as we watched her fragile body being loaded onto a truck from a cull-cow market and unloaded at a slaughterhouse in Friesland.

We would like to thank all those farmers who welcomed us on their farms, the market and slaughterhouse managers who showed us their facilities and listened to our suggestions and all the cattle experts (transporters, veterinarians, welfare scientists) who met with us and answered our questions. We are very grateful for their collaboration. Although some people from the dairy industry did not let us in or did not want us to take photos or footage, and some will also find this report confrontational, it is by working together and being open that we can move forward to improve animal welfare, work pleasure for the farmer and customer satisfaction.

Lastly, we would like to thank all the volunteer-inspectors from Eyes on Animals who put hours and hours of their free time into helping with the field work and research needed for this project. You are all true assets to the organization.

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Wageningen/Amsterdam, October 2014

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1. Personal comments

As a Dutch Master student studying Animal Sciences specializing in animal welfare and behaviour at Wageningen University, my main objective is to outline all practices in the Dutch dairy sector from birth till slaughter of cows and calves, and discuss the effects on animal welfare and ethical concerns in the current way of dairy farming. Besides having a critical look at the common current system, it is also important to put emphasis on good practices, since more animal-friendly ways of dairy farming exist that deserve more attention.

During my studies I became more and more worried about our farmed animals and the quality of their lives. In my opinion, animal welfare is often impaired by current housing and management on the farm, and by animal transport and slaughter conditions. I applied to be a volunteer inspector at Eyes on Animals in order to learn more about transport and slaughter of farmed animals. Besides this, I wanted to spread my knowledge of agriculture and animal welfare via Eyes on Animals by volunteering for this dairy report project. For this report, I outlined current statistics of the Dutch dairy industry, I sorted out literature on animal welfare aspects in dairy farming, and I visited numerous dairy farms and a cattle market with Eyes on Animals.

It is my honour to be part of this project to try to raise peoples' awareness of dairy cow-welfare in The Netherlands. I hope we can succeed in shaking up consumers and the people in the dairy industry itself (e.g. farmers, cattle market leaders, transporters, and slaughterhouses) by opening their eyes to the poor welfare conditions the majority of our dairy cows suffer from. I also hope we can inspire farmers and other stakeholders in this industry to apply more animal-friendly practices, and to motivate consumers to buy more animal-friendly milk. If we can alter the whole system together with most stakeholders, suffering of these animals can be greatly reduced and better lives for them can be created.



Margret Wenker Sept 2014

2. Summary

In the current Dutch dairy industry about 1,5 million dairy cows produce about 12,2 billion kg milk each year. Throughout her lactation period a typical Dutch cow produces on average 27 litres of milk per day, with peaks of 50-60 litres per day. One could imagine this puts high demands on the animal's body. This high production not only leads to a lot of health problems like metabolic diseases, lameness, and mastitis, but also to reproductive problems related to the negative energy balance of these animals. In addition, usually calves are taken away from their mother within 24 hours after birth causing stress in both mother cow and calf; the calves will in general be housed individually for the first two weeks and are often raised on artificial milk powder. The early separation of calf and mother cow can cause stereotypic behaviours and impaired behaviours due to limited expression of natural behaviours in both animals. The calves are dehorned causing much pain in case no painkillers are administered, and negative emotional states. Also, the current way of housing dairy cows raises ethical concerns. Often, the cubicles are too small and narrow for the nowadays big Holstein Friesian cows resulting in backbone deformations, skin damages and abrasions. The slatted concrete floor is often dirty and slippery causing lameness. There is also a worrying decline in the percentage of cows kept on pasture during summer time, since this can negatively affect animal welfare. The average age of Dutch cull-cows is 5-6 years. Cull-cows are not always sent to the slaughterhouse directly, some have to go to a cattle market first. Here animals often arrive in poor conditions, including leanness, lameness, illness, and weakness. Finally, they will again (although some are clearly unfit for transport) be transported to a slaughterhouse in The Netherlands or nearby neighbour countries. Unfortunately, people in the industry are losing the ability to see the difference between a healthy and a severely sick cow. They are becoming desensitized since what used to be an abnormal poor condition of a cow is becoming the norm nowadays, resulting in lots of suffering of these animals. Furthermore, the dairy industry creates lots of redundant dairy calves that will be fattened for veal meat. These young animals leave the dairy farm at fourteen days of age, will be transported to fattening farms (which can be somewhere in The Netherlands or somewhere in Europe) where they will stay on average up to six months if fattened for pale veal meat or up to eight months if fattened for rosé veal meat. Welfare concerns that rise in these systems are related to the diet of the animals (i.e. milk-based with limited roughages for aiming for low haemoglobin levels) and stereotypies that arise from this (e.g. cross-suckling and tongue rolling). Economics play an important role, since the low margins for milk and meat often impair the possibilities to take measures for better animal welfare. In addition, all stakeholders need to make money for their own living, which eventually is on the cost of the animals.

Although there is legislation for the treatment of animals on farms, during transport and during slaughter, these legislations are all limited to a minimal level of animal welfare and not appropriately complied to. Labels have been developed in order to ensure higher levels of animal welfare, like 'Weidemelk' (pasture milk)-label, EKO (organic)-label, and Demeter (bio-dynamic)-label. Also in the field, farmers are found that want to change their management aiming for a better life of their animals. Eyes on Animals visited 'De Zonnehoeve' in Zeewolde, 'De Regte Heijden' in Riel, 'Moerdijk' in Moerdijk, 'De Groote Veen' in Lunteren, 'Schoonderbeek' in Achterveld, and 'Hazelbroekhoeve' in Overloon; all dairy farms where good practices were found, such as the practice of keeping the calves with their mothers for a few weeks up to few months, special housing systems, robot milking machines giving some control back to the cow, and access to pasture.

Eyes on Animals would like to see that these farmers be rewarded for their positive attitude and for taking new and often costly steps to improve animal-welfare. Especially keeping the calves with the mother is something that very few farmers do, and is not explicitly required *in any labelling system*; yet significantly can improve the quality of life of both the cow and the calf. Although the extra labels have some specifics linked to welfare, many high-welfare dairy farms cannot receive the label certificate because they are lacking fulfillment of often very strict environmental regulations. Thus, often their milk is being mixed with conventional Campina milk or milk complying with rules of other labels that do not specify to the consumer that significant welfare steps were taken. For this reason farms like Zonnehoeve are starting up their own small milk factory.

The 30 dairy farms in the Netherlands that keep the calves with their mother should be recognized for this important step. This can be done by already existing labelling systems (such as Demeter Zuiver Zuivel) which could create additional criteria specific to welfare, or by creating a brand new label just focused on animal welfare. In the end, Eyes on Animals wants that consumers now have the option to support dairy farms that are top in welfare and that these farmers are allowed to shine.

3. Life on a conventional dairy farm

In this section the life of dairy cattle on a standard dairy farm in the Netherlands will be discussed including statistics on the Dutch dairy sector. This will be followed up by some ethical concerns that arise in the current way of keeping dairy cows and their calves.

3.1 *Introduction into the Dutch dairy sector*

Currently, there are about 17,240 conventional dairy farms in The Netherlands (LTO, 2013) housing about 1,597 million dairy cows (CBS, 2014a). An average Dutch dairy farm houses about 87 cows (CRV, 2013a); almost 50% of the total number of dairy farms have more than 70 dairy cows. On average a Dutch dairy cow produces about 8.210 kg milk per year (LTO, 2013), but which can even exceed 12.000 kg per lactation (CRV, 2013b). A Dutch dairy cow produces on average 27 litres of milk per day during her lactation period (CRV, 2014a). These numbers are according to literature and statistics; however, as experienced in practice, not every cow is the same. There are cows that produce less, but also cows that produce more than average. Every lactation the current Holstein Friesian dairy cows produce more and more milk. Increases in milk yield are estimated to be around 100-125 kg per lactation in The Netherlands, USA and Canada (Veerkamp et al., 2009). Approximately 50% of the increase in milk yield per cow can be attributed to genetic selection for high milk production, whereas the other 50% is mainly (feed)management (Veerkamp et al., 2009). In 2012 the 'best producing' cow in The Netherlands produced on average 45 litres of milk per day. However, a cow starts her lactation period after the calf is born. The production will increase with time up until one-third of her lactation period, after which her milk production will slowly decrease. This means that although a cow may produce 27 litres of milk on average, at her peak of production she might produce 50-60 litres of milk per day. There are even occasionally a few cows that hit 100 litres of milk per day during their peak period (Keuringsdienst van Waarde, 2014). There are about 344 organic dairy farmers in The Netherlands, housing about 24,462 dairy cows (CBS, 2013), which produce on average 20 litres per day (Bionext, 2013). Overall, in 2013 in total 12,2 billion kg milk was supplied to Dutch dairy factories (CBS, 2014b).

Each year about 1.569 million dairy calves are born (PVE, 2012). In 2013 about 950.000 calves were registered as pure Holstein Friesian in the herd book of solely CRV (CRV is the most important Dutch breeding company for dairy cattle) (CRV, 2014a). This shows the impact of the Holstein Friesian breed on the Dutch dairy cow herd. Other breeds that are often used or crossbred with the Holstein Friesians are Groninger White Headed, Jersey, Fries-Hollands, Fleckvieh, Maas-Rijn-IJssel, and Brown Swiss (Nauta, 2010; CRV, 2011). In most cases, as soon as the calf is born, it is taken away from its mother (see Figure 1). Often this happens within 24 hours. Soon after separation, the cow will return to the dairy herd and will be milked.



Figure 1. Calf is taken away from its mother one hour after birth.

There are various reasons why the calf is taken away from its mother, the main one being economic constraints with the dairy industry aiming to sell the milk for human consumption. Also, the farmer can better monitor the health status and feed intake of a calf when artificially reared. In addition, under standard farm practice, milk let-down is rapid and needed for milking parlour efficiency. Keeping calves with the cow could reduce this quick milk-let down reflex. Cows without calves also seem to ovulate already 3-4 weeks after birth, which tends to be more rapid than when the calf is suckling with the mother (Flower and Weary, 2003). Moreover, calves are taken away quickly after birth in order to avoid the cow-calf bond that will develop if left longer together. Studies have shown that separating them quickly after birth results in a reduced distress response compared to leaving mother and young together for a few hours or days (Daros et al., 2014). Right after early separation, the calf will be placed in an individual calf box or igloo, see Figure 2, where it will stay for about three days to consume enough colostrum (colostrum is the first thick, yellowish 'milk' of the cow which contains lots of antibodies that are very important for the calf's immune system).



Figure 2. Most common ways of individual housing of new-born calves on Dutch dairy farms.

After this period, the so-called milk period comes, during which the calves will consume milk made out of artificial milk powder (milk powder is often made out of real milk components with added minerals and vitamins) or they are fed with milk from the tank, still individually housed in their box or igloo. This is done in order to be able to check on the health status of the young animal. The farmer can easily see whether it consumes the bucket milk well or whether it is suffering from diarrhoea. In general, after seven to fourteen days female calves will be housed in groups. Nevertheless, legally

calves can be kept individually up to eight weeks of age. The housing system during this period differs per farm, calves can be kept in group-igloos, deep-litter pens, solid bare floors, slatted floors, 'two-floor' barns (partly slatted floor - partly straw area), or small cubicle barns (see Figure 3). Only about 30 Dutch (mostly organic/biodynamic) dairy farmers keep the calves with their moms for a few weeks up to a few months (Verwer, personal communication 2014), where they are often kept in the dairy herd.



Figure 3. Small cubicles for calves.

In The Netherlands about 700,000 (female) calves are dehorned each year (Visser-Riedstra et al., 2007). Dehorning is allowed up to an age of two month. Since legislation states a light sedation and local anaesthetic are required as it is an painful procedure, dehorning is done by the veterinarian. Dehorning is mostly done by burning the base of the horns with a thermocautery. The heifer calves are weaned at an age of two to three months after which no more milk will be provided but only solid food, like roughage and concentrates. By then the animal will most often be housed in an adapted (mini) cubicle barn, whereas at an age of thirteen months, the heifer will be artificially inseminated and move over to the cubicle barn although they will stay separated from the dairy cows in lactation. A cubicle barn is a housing system in which the dairy cattle are loose housed (see Figure 4). About 88% of the Dutch dairy cows are kept in cubicle housing (CBS, 2012).



Figure 4. Standard cubicle housing for dairy cows.

Cows can move around on the slatted floors, and lie down in the cubicles. There are cubicles without any bedding, just solid bare lying areas separated from each other by iron bars. More often you will find bedding of saw dust on the solid floors, rubber mattresses, or deep litter cubicles filled with compost, sand or straw. The latter is rarely used however. In modern stables, one will often find waterbeds in the cubicles. Besides cubicle housing systems, there are still about 2,000 tie-stalls (Leenstra et al., 2011) in which cattle are tied up. This means cows can only stand up or lie down (see Figure 5). Feed is presented in front of them, and only at milking time will cows have the ability to walk. Often farmers with a tie-stall let their cows outdoors during the day in summertime.



Figure 5. Cow in tie-stall.

There are a few farmers with a deep-litter housing system; and about 30 farmers who house their cows in a loose-housing system. In these systems, no cubicles are present but cows can lie anywhere they want. A deep-litter system is often filled with straw (see Figure 6), which will be topped with new materials on regular basis (i.e. an anaerobic bottom). Once a year the stable will be fully emptied. In a loose-housing system the barn is filled with aerobic material, often compost, which is daily tilled to keep it dry and fresh (see Figure 7).



Figure 6. Deep –litter housing system on straw.



Figure 7. Loose-housing system on compost.

About 30% of Dutch dairy cows are housed indoors throughout the whole year. As for the 70% of dairy cows that have outdoor access, this access is restricted in 76% of the cases to only access during the day in summer time (CBS, 2014c). If cows cannot graze, they are fed inside with mainly grass silage, although some farmers do feed fresh (mowed) grass in summertime. Additionally, they are fed with concentrates and/or corn silage in order to maintain the high milk production.

Nowadays also a lot of farms have started to feed a Total Mixed Ration (TMR), in which no additional concentrates have to be fed and all cows get the same ration. In fact for a TMR all feedstuffs are weighed and blended into a complete ration that is offered as a single feed. If cows get too much concentrates, silages with too high sugar contents, and/or too less roughages are fed, rumen acidosis can occur and cows will become ill. The cow will suffer from abdominal pain, diarrhoea, low feed intake, claw disorders, and she will lose body condition.

Preferably the farmer wants the heifer to give birth to her first calf at an age of 23 months (Schoemaker, 2006). Throughout her life, each lactation lasts about 305 days in which the dairy cow will produce on average about 27 litres of milk each day (CRV, 2013a). In general, after each lactation period there will be a rest period ('dry'-period) of about 6-8 weeks in which the cow will produce no milk. During this time, she can restore her energy and prepare herself for the next lactation period. However, it is becoming a trend to leave cows in a dry period of only 30 days or even to not put them dry at all but keep on milking them continuously. Often cows are compared to marathon runners, where the dry period is compared to holidays. It is harder for a marathon runner to start running at the same level as he used to do after six week holidays compared to keep on training continuously. It is said this could be the same for our high producing dairy cows. Research has already showed a lower loss of body condition score and a lower incidence of milk fever in lactating cows when they are continuously milked compared to cows with a dry period (Ouweltjes et al., 2000). However, there are still a lot of questions unanswered when it comes to continuous lactations so further research is definitely needed. It also often happens that a cow will not get pregnant after insemination. The main cause of this is her negative energy balance (Butler, 2003). All energy is allocated to her milk production, meaning the cow will not invest in herself and her own body. Limited energy is left to prepare the uterus for a new successful pregnancy. Nowadays at 80-90% of the Dutch dairy farms, reproductive hormones are used on 5-25% of the dairy cows to get them pregnant again (Vos, 2014). In fact this means farmers are pushing the animal's body to produce a new calf, although naturally, the body's reproductive mechanisms fail due to insufficient energy for a new pregnancy. When it comes to the usage of antibiotics, on average a daily dose of 2.9 per year per dairy cow is used on dairy farms, whereas calves on dairy farms receive on average a daily dose of 10.9 per animal per year. This means that calves get antibiotics through the milk for on average eleven days (SDa, 2013). The average age of a Dutch dairy cow at culling is 5.8 years old (CRV, 2014a), this means the average dairy cow gave birth to 3.4 calves after which she and after her third or fourth lactation period she is culled. The three main reasons for culling a cow are bad fertility, hoof problems, and udder problems (Ouweltjes et al., 2003). About 35% of the calves born on a dairy farm will be reared to replace the cull-cows (CRV, 2011). Each year about 372,000 cull cows and about one million new born calves are transported off the farm (Leenstra et al., 2011). The bull calves and other heifer calves will leave the dairy farm at an age of about fourteen days, as they will be fattened on fattening farms and be slaughtered at an age younger than eight months if they are fattened for pale veal meat, or between eight to twelve months of age if used for rosé veal meat. In The Netherlands, out of the 1.5 million calves born each year 575,000 calves are used to replace the dairy herd, up to 86,000 are used for beef production, and 908,000 calves are fattened for veal meat. In 2012, out of this number 578,810 calves were fattened for pale veal meat and 329,560 calves were used for rosé veal meat (PVE, 2013). Up to 865,000 calves were imported (mainly from Germany, Poland, and Belgium) and about 125,000 calves were exported (PVE, 2013).

3.2 Ethical considerations

When it comes to dairy production in The Netherlands, some ethical considerations arise concerning the life and handling of the animals on the farm. In this section five main issues and their impacts on the animals' welfare will be discussed: genetics, cow-calf separation, dehorning in calves, the housing of calves, and the housing of dairy cows.

3.2.1 Genetics

As mentioned earlier, Holstein-Friesian dairy cows dominate the Dutch dairy herd. After decades of genetic selection and intensive breeding, the breed has been optimised to produce high amounts of milk. However, the long-term genetic selection for high milk yield is the major factor causing poor welfare in dairy cows, especially health problems (EFSA, 2009). It has been shown that the higher the milk yield, the higher the incidence of lameness, mastitis, reproductive disorders and metabolic disorders. It has also been found that an excessive or prolonged negative energy balance in dairy cows is more likely to be found in the highest producing animals (EFSA, 2009). These cows require so much energy to sustain high milk production that they break down their own body reserves and lose excessive amounts of body condition, as they are not able to eat enough feed to obtain this energy. In fact, the mobilisation of functional tissue is an indication of starvation (Olteneacu and Broom, 2010). An example of a cow with low body condition score can be seen in Figure 8.



Figure 8. Lean cows showing back bones, hip bones and pin bones.

It is suggested that welfare of dairy cows in a poor body condition score is compromised, as they may feel hungry, tired, or sick (Roche et al., 2009). In addition, negative energy balances and low body condition scores are associated with reduced fertility, and digestive, metabolic and infectious diseases, especially mastitis. Mastitis is the number one health problem of dairy cows; it is a painful udder inflammation, which can be clinical or subclinical. The infection is caused by bacteria (coming from the environment or the cow itself) that move into the udder. About 80% of the infections by cow-related bacteria are caused by unhygienic milking. If a cow suffers from clinical mastitis symptoms like a warm, swollen, or hard udder, and particles or blood in the milk can be found. Subclinical mastitis is invisible, although milk composition will be altered and will have a high somatic

cell count (which is an indicator of the quality of milk, indicating the amount of white blood cells in the milk). Up to 28% of the Dutch dairy cows suffer from clinical mastitis each year. It is expected that at least the same percentage can be found for subclinical mastitis cases, which cannot be detected from the outside (Gezondheidsdienst voor Dieren, 2012). A cow with a high-yield lactation is most likely going to suffer from more mastitis cases in the following lactation (Oltenacu and Broom, 2010). Mastitis resistance is genetically negatively correlated to high milk production traits. One out of eight heifers suffers from clinical mastitis during her first lactation period (UGCN, 2011). About 85% of the Dutch cows will be put 'dry' on antibiotics in order to prevent new infections and to heal invisible infections (Gezondheidsdienst voor Dieren, 2012). These numbers clearly show the problem of mastitis, which again can be partially linked to genetics.

Another common (metabolic) disease in dairy cows is milk fever. Up to 60% of Dutch dairy cattle suffer from subclinical milk fever each year (Wanninge, 2011). After calving, the cow requires a lot of calcium to produce colostrum and milk. In most cases, the cow cannot eat enough feed to compensate for the demands of calcium her body needs for the calf and her lactation resulting in a calcium deficit. In the end she will drain calcium from her bones to sustain the high milk production she is subjected to. This way, she might develop milk fever. Finally, if the calcium deficiency in her system gets to severe the cow will collapse, since low calcium levels affect muscle functioning in a negative way. This results in so-called 'downer-cows': cows that collapse and cannot stand up anymore, like the one found at the cull-cow market in Leeuwarden in August 2014 (see section 4.1). That downer-cow with acute milk fever had to be euthanized as even a calcium injection could not get her onto her legs anymore.

The genetic selection for high milk production has also changed the shape and size of dairy cows, resulting in dairy cows having to adjust their behaviour (EFSA, 2009). The shape and volume of the udder of the current dairy cow causes problems with respect to locomotion, lameness, and comfort during resting in the most common housing types. The same has been observed by Eyes on Animals on the Dutch cull-cows markets, see Figure 9.

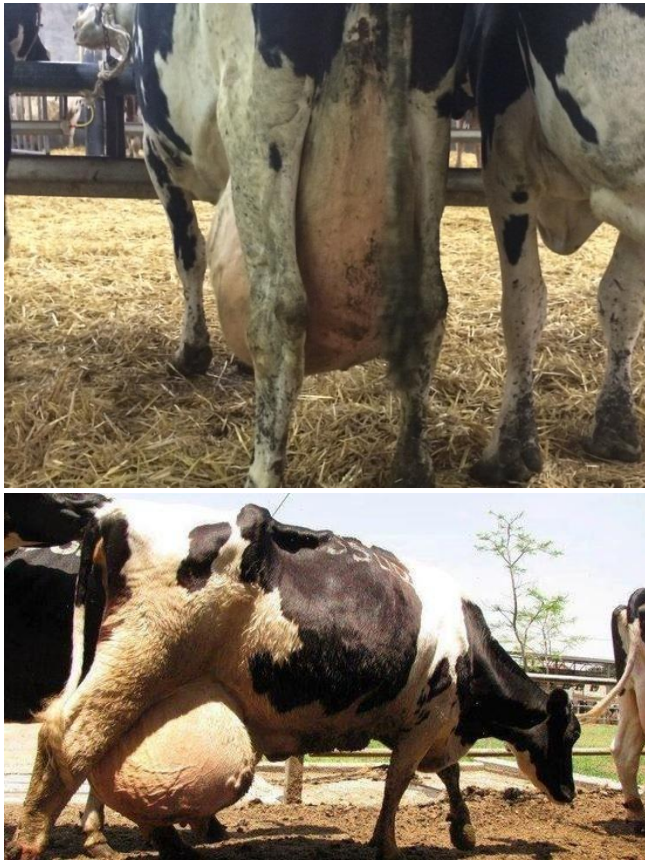


Figure 9. Full and big udder of culled-cows.

The shape and volume of the (full) udders causes abnormal locomotion patterns (Chapinal et al., 2009). Many cows on the market were found walking slowly with their hind-legs further apart to avoid udder swinging and stretching. Also on farms, cows often cannot walk normally with their hind legs straight along the udder as the big udder is in the way. This makes cows have to walk with their legs turned slightly outwards. It could be that lameness is related to this abnormal locomotion pattern, since the cow will not use the function of her hoof mechanism as it is meant to be (normally she spreads her hooves out evenly and flatly to spread the high pressure over the whole surface). By swinging her legs around the large udder, more pressure is put on the outer digits instead of the full hoof, resulting in uneven wear of the claws (Chapinal et al., 2009; Flower et al., 2006).

Also, the higher incidence of lameness itself found in Holstein Friesian cows makes them adjust their behaviours. Most lame cows are in pain and have greater difficulty in coping with their living conditions than non-lame cows because of the effects of the foot disorder on walking, lying comfort, standing up and avoidance behaviour (EFSA, 2009). This was also observed in many cows arriving at cull-cow markets: a great number of lame cows having difficulties walking, standing, and lying down/getting up. If a cow is lame, she suffers from bruises, abscesses, or wounds under her hooves, and when standing, walking, or lying down/getting up she has to carry her own weight on her sore hooves. A cow that is lame is clearly suffering from pain - each back hoof has to carry up to 140 kg, whereas each front hoof carries about 210 kg. Thus, a wounded or infected hoof causes suffering at every step. Additionally, the mechanism of the hoof when walking is such that her digits spread slightly apart causing further pain to a sore in the area. Estimates on the prevalence of lame cows in the Netherlands varies from 25% up to 70% (Rougoor et al., 2012). However, Bruijn et al. (2010)

state that up to 80% of the dairy cattle suffers from hoof problems every year, of which 25% are visibly lame. Naturally, cows are a prey species meaning they are not willing to express pain that easily as it might increase their risk for predation. One understands if a cow shows her pain visibly, it must be severe.

Overall, the genetics of Holstein Friesian cows negatively affect their longevity, as high milk yield depletes them resulting in metabolic, reproductive or digestive diseases, hoof and leg disorders, and low body condition scores. The health/fertility problems and reduction in milk production levels are the main reasons to send them for slaughter. Although cows can reach ages of between 15-20 years old, most of our Holstein Friesian cows get culled at an age of about 5-6 years.

In order to improve dairy cow welfare, there is an urgent need to promote changes in the criteria used for genetic selection in the dairy industry. Breeding companies play a major role in determining what type of dairy cows will populate our dairy farms in the future and, therefore, carry the ethical responsibility for the welfare of future populations of cows. In the past, high milk production was the main trait for genetic selection. Recently, due to rising reproduction problems, production related diseases, and stricter legislation on the use of antibiotics, breeding programmes have started to take account of and attempt to improve fertility, health, and other welfare-related traits. This can also be retrieved from CRV's annual report (the biggest Dutch cattle breeding organisation), in which they claim to attempt to secure health and welfare of the dairy cows (CRV, 2014b). Since 2012 milk production itself counts for 27% of importance in the index of CRV. Factors as longevity, feet and legs, udder health, udder formation, fertility, and calving characteristics count for respectively 22%, 16%, 15%, 11%, 6 %, 3% (CRV, 2012). Nevertheless, it seems that many of these non-yield traits are related to the outward appearance of cows, such as overall conformation or 'type', udder-type traits, and body size (Oltenuacu and Broom, 2010). It is important that the selection index gets even more adapted to one in which more specifically welfare-related traits are included and appropriately weighted (EFSA, 2009). Moreover, if selection acts directly on causes of poor welfare and not only on its symptoms, the effectiveness of a selection programme to improve welfare would be enhanced (Oltenuacu and Broom, 2010). Cross-breeding could also be an option to reduce welfare problems related to breeding. Cross-bred dairy cattle benefit from heterosis (better performance than both parents on average) in many traits contributing to profit in terms of, for instance, better animal health, resulting in lower costs for the farmer (Oltenuacu and Broom, 2010). Cross-breeding Holstein-Friesian cows with for instance Fleckvieh will result in more robust animals with a better immune resistance but still a high milk production. Organic farmers often use cross-breeds, as they are not allowed to preventively use any antibiotics making them rely on natural immune resistance.

3.2.2 Cow-calf separation

As mentioned earlier almost all new-born dairy calves are immediately taken away from their mother, although in nature calves stay with their mother for about 8-11 months. Nursing is an important factor to consider when evaluating cow and calf welfare; nursing has a nutritional function, especially in the first 24 hours right after birth when colostrum is made which contains antibodies for the calf to consume to strengthen its immune system. In addition, nursing has a calming function and is needed for the emotional development of the calf. The social bond that develops between calf and cow is characterized by grooming each other, warmth from resting with physical contact, synchronizing activities, and maintaining proximity for protection. Weaning at the natural age results in optimal

social behaviour, also in later life, and the least amount of stress for both mother cow and calf (Van Dixhoorn et al., 2011). However, this long nursing period can cost too much consumption of milk intended for human consumption. In addition, leaving cow and calf together for a longer time could affect the development of both calf and cow in a negative way; as observed by farmers, after about six weeks of age the calves may start to over-consume milk which could be detrimental for their own health; minimal socialization between calf and human could take place, which may result in difficulties in handling the calves later on as they often show fear responses and high level of heart beats as acute stress response if approached by people. Cows may also have a longer calving interval if left with their calf, as nursing can cause the ovulation to postpone. Nevertheless, nursing causes an oxytocin release in the mother cow making the uterus contract and clean itself resulting in a better recovery of this organ and a lower risk for uterus infection (Van Dixhoorn et al., 2011). The incidence of clinical mastitis could be reduced by a factor of 2.5 when calves are kept with the cows for five days compared to those separately immediately, as less milk is left in the udder (Flower and Weary, 2003). Moreover, cows that nurse their calves for eight weeks often produce a greater amount of milk. Although there was still a decrease in overall milk yield at milking time, the decrease was less than the quantity drunk by the calves, suggesting an overall economic advantage (De Passilé, 2001); the calves will be bigger, stronger, healthier, with only a small decrease in milk yield at milking. Also, studies have shown that the incidence of mastitis was nearly halved and growth rates of heifer calves were much greater for the ones nursing with their mother compared to artificially reared heifer calves (De Passilé, 2001). The same was observed on the bio-dynamic farm De Zonnehoeve in Zeewolde where cows nurse their calves for about 3-4 months of age. Since the farmer started to keep the calves with their mom, the cows started to produce relatively more milk at milking time, consequently compensating for the amount of milk consumed by the calf. Cows also were observed to have a low prevalence of mastitis compared to the time calf and cow were still separated right after birth. Studies and practices in the field have shown that keeping calves with their mother for a longer period (i.e. several weeks or months) can greatly improve welfare for the animals, if the farmer has a good eye on his animals and professional management skills. No one can take such good care of a young calf as its own mother. Calves also have less incidence of infections in the umbilical cord if they stay with their mother for a longer time. Additionally, they develop more healthily and are stronger, due to sufficient water and feed intake before and after weaning and a better functioning of the immune system. The calves get used to a social order in the herd, avoiding the stress that calves raised in isolation the first weeks experience when suddenly placed in a group and then re-grouped regularly thereafter. The cow gets off to a better start in lactation as well when left with her calf, and appear to have fewer udder problems. The whole herd benefits, because they can express more natural behaviour: nursing, protecting, and social resting behaviour, plus higher levels of play indicative of a positive emotional state, are observed in these herds (Van Dixhoorn et al., 2010; Boissy et al., 2007). Three common nursing systems for dairy cattle exist. Firstly, keeping the mother and calf together, sometimes apart from the herd, all the time up to the moment of weaning. Secondly, keeping the calf with a foster cow in order to reduce mother-cow bonding or because the mother cow may be too valuable due to her milk production. Thirdly, the farmer can choose to let the cow nurse her calf only for limited periods throughout the day.

Timing is important when it comes to letting calves suckle their mother and the moment of taking them away. Separation calf and mother results in a clear behavioural response, which in nature would serve to reunite the cow and calf. Dairy cows allowed to stay with their calf after birth but

separated within 24 h show a mild stress reaction after separation. However, even five minutes of contact with the calf after birth results in behavioural distress of the cow expressed by vocalisation and increased activity (Flower and Weary, 2003). After the mother-young bond has been established (i.e. two days or more) the cow shows a stronger reaction after separation, and this reaction becomes stronger the longer the time that they stay together (EFSA 2009). A study showed that white on the eyes was larger than base level if the calf was taken away, whereas a few seconds after the calf was brought back into the pen together with the mother the eye-white percentage markedly reduced (Sandem and Braastad, 2005). Visible eye white is a dynamic indicator of emotions in dairy cattle; a high percentage of visible eye white indicates frustration or fear and low indicates satisfaction (Sandem and Braastad, 2005). This clearly shows the experience of negative emotions in a cow when it comes to being separated from her calf. However, some farmers and students do report almost no stress response in the Holstein cows after the calf is taken away. They say she is searching only the first few minutes, but as soon as she is back in the herd she lies down and starts to ruminate. However, even though farmers may not always observe a behavioural stress response, scientific research showed elevated heart rates and cortisol levels in mother cows after early separation from their calf (Lidfors et al., 2008; Whisnant et al., 1985). The fact that stress signs right at and after the moment of separation are not always observed can be explained by the fact that farmers and students may not know all the behavioural indicators and more importantly they do not have the time to observe the cow/calf for a longer time. Next, genetics could play a role here, since due to the strong selection for high milk production the strong mother instinct could be 'lost'. Maternal deprivation could also take place because the mother is inexperienced and does not know 'how to mother'. She did not experience maternal care herself so she learned these behaviours improperly as she was young (Van Dixhoorn et al., 2011). Research has showed that mothered cows are more 'maternal' than non-mothered cows (Flower and Weary, 2003).

Calves seem to have more difficulties than their mothers with getting separated right after birth, as they have a strong urge for maternal care. As observed by Eyes on Animals, calves were still weak and disorientated when they are taken away from their mother. Before they were taken away from their mother, they were sleepy and relaxed, whereas after separation they were looking around for hours, appeared nervous, and vocalized. Sometimes farmers do not give the cow the opportunity to lick her calf dry. Licking stimulates the calf's activity, the calf's blood flow, breathing, urination and defecation, dries the calf's coat reducing heat loss and therefore making it less vulnerable (von Keyserlingk and Weary, 2007). A study by Daros et al. (2014) has shown that dairy calves show a negative response bias to ambiguous cues after separation from the mother. This pessimistic response bias is consistent with a negative emotional state. Weaning involves both loss of social contact with the mother and access to mother's milk, but also a change in the social and physical environment. This is also the reason calves are less motivated to drink milk after separation, which is often observed by dairy farmers. It turned out that separation from the mother induced the same pessimistic response bias as the one induced by dehorning (Daros et al., 2014). Additionally, stereotypic behaviour is often found in calves raised without their mother, such as cross-suckling (sucking ears, tails, prepuce, and other body parts) (see Figure 10) and inter-suckling (milk stealing and udder sucking in older animals) (De Passil , 2001). Calves reared separately from their mother are often fed with milk from buckets and can only suck at objects in the pen or at pen mates to satisfy their sucking motivation if no artificial teat is present (see Figure 11). Inter-suckling is often already performed by the artificially raised calf before weaning. Cross-suckling can cause

inflammation of for example the navel, but also result in hairless body parts on the suckled calf due to intense abnormal sucking of the calf performing this behaviour. This behaviour can be prevented by individual housing, nevertheless the motivation to perform this behaviour remains (Jung and Lidfors, 2001).



Figure 10. Cross-suckling in artificial raised calves on a Dutch conventional farm.



Figure 11. Calf suckling a bar of its individual box in order to satisfy its suckling motivation, as no artificial teat is present.

In nature, during the first weeks, the calf suckles the cow five to nine times per day, and during the following months three to five times per day (Jensen, 2003). Artificially-reared dairy calves receive a daily amount of 4–6 litres of milk or milk replacer, given in two meals by an open bucket (see Figure 12) or on some farms by a nipple-bucket with a rubber teat (see Figure 13). When calves are supplied with milk in an open bucket, they cannot satisfy their suckle need. When the calf drinks milk from an open bucket it takes about one minute to finish 2.5 litres of milk, whereas a sucking bout from the udder of a cow takes 8-12 minutes (Loberg and Lidfors, 2001). By providing milk (or water) in nipple-buckets stereotypic behaviours might be reduced, since the calves can redirect their strong motivation to suckle towards the artificial teat.

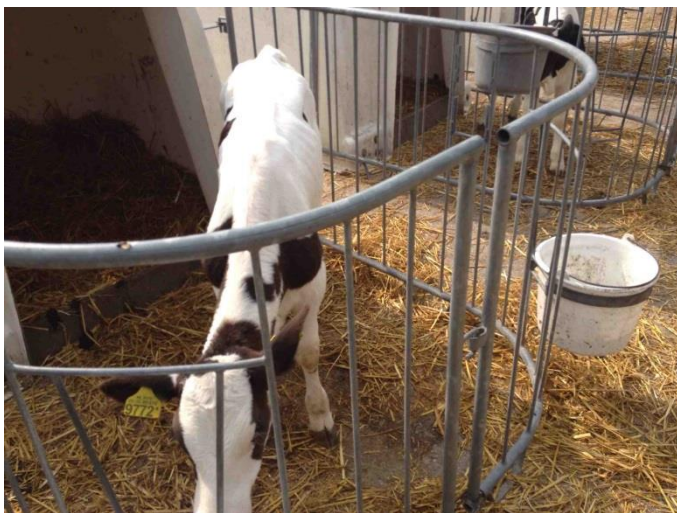


Figure 12. Milk buckets where the calves drink from the open pail with no opportunity to suckle.



Figure 13. Bucket with nipple so the calf can satisfy its suckling motivation to a certain extent.

Studies have shown that abnormal sucking usually starts directly after the meal and decreases with time. It is most common in calves given milk in open buckets with a relative fast flow. Non-nutritive suckling is decreased when fed with an artificial teat, especially when calves receive milk with a slow flow from the teat. Calves that had finished their milk from a nipple with a fast flow continued suckling the nipple for up to fifteen minutes, still showing their strong suckle motivation even when satiated. An increased time spent ingesting milk (i.e. by a slow-flowing nipple) reduces cross-sucking. Often farmers do remove the buckets when the milk is finished, however this tends to increase abnormal suckling and cross-sucking compared to calves with access to the teat buckets all the time (Loberg and Lidfors, 2001; Jung and Lidfors, 2008). This clearly shows the importance of nipple-buckets in order to satisfy the strong suckling need in young calves when artificially reared. When calves stay with their mother, suckling other calves is hardly reported (De Passilé, 2001). If farmers find a calf performing these abnormal behaviours, they can place a nose-ring to prevent inter-suckling, as it is believed to cause udder malformations and mastitis (De Passilé, 2001), although the motivation to perform this behaviour will still be present.

If calves are kept with their mother for a longer period the weaning moment can still cause a lot of stress, if the young animals are still weaned at an earlier age (i.e. up to three months of age) than in nature (i.e. at least seven months of age). On a farm, calves can be weaned abruptly or gradually. If weaning abruptly, this means the calf is separated from the cow and from the milk at the same time. The calf is taken away from its mother and placed in another barn, whereas the cow goes back into the herd if she was not already there. No physical, and often also no auditory and visual contact is possible anymore, and the calf will have to eat roughage. Part of the stress response is caused by the fact that milk is addictive to calves due to milk proteins like casein, but also because the very young calves are still dependent on this food source (Van Dixhoorn et al., 2011). Weaning causes stress resulting in restlessness and vocalizing of calves and cows. The vocalizations are mainly a reaction to their feeling of hunger source (Van Dixhoorn et al., 2011). There may also be negative effects on the weight gain after weaning due to reduced water and feed intake. If weaned gradually after being with the cow for a longer period of time, less stress is reported, as in this case still a limited amount of milk intake could be possible or only social contact between mother and calf. By slowly reducing the contact between mother and calf, stress responses can be reduced. One approach of gradual weaning is moving calves to the opposite side of a fenced area, such that the cow is still able to see and contact her calf but the calf is unable to suckle through the fence unless the cow allows it (by standing next to the fence). Another method that is used is a nose-flap in the calf that prevents it from latching onto the teat. Both mother and calf showed less signs of stress when they were given the opportunity to maintain physical contact by using a fence-line or nose although no suckling was possible anymore (von Keyserlingk and Weary, 2007). Calves that had the two events of weaning separated in time walked and vocalized less, and were lying and ruminating more. In addition, they show lower heart rate and cortisol levels (Loberg et al., 2008). So not only the moment in time, but also the way of separation affects the intensity of the stress experienced by both the calf and cow.

3.2.3 Dehorning

About 700,000 calves are dehorned in the Dutch dairy industry each year. Dehorning animals can be said to impair their integrity, as the wholeness and completeness of the animal is affected by amputating their horns (De Vries, 2006). As mentioned above dehorning is mostly done by burning the base of the horns while the animal is sedated. Dehorning is mainly done for the safety of the farmer while handling his animals, but also for the safety of the animals since they can get themselves seriously injured if in a fight. This last argument is of importance as most cows are currently housed in high densities and stables with dead-end corners which can cause tension among the cattle. With dehorning, more cattle can be kept in one area, and the animals are easier to handle (Stafford and Mellor, 2011). Nevertheless, it has also been shown that dehorning causes adapted behaviour in cows. Instead of warning another animal with her horns, dehorned cows have to show antagonistic behaviour now by touching each other more, for example by head butting (Leenstra et al., 2011). Head-butting may cause bruises and injuries, but could also cause a higher risk for falling on the slippery slatted floors in the current cubicle housing systems with narrow walking alleys. It has also been said that horns play a role in the digestion process, since they get warm while cows are grazing. By some farmers it is also believed that the horns are a deposit for vitamins and minerals. Each time a cow gives birth to a calf she needs more vitamins and minerals that she normally takes from her horns. Dehorned cows have lost this deposit, and will take these sources from their hooves, because hooves are made out of the same material as horns. This could be one of the reasons for the high incidence of lameness. Furthermore, a recent study also showed that the emotional state of the

calves is affected by dehorning and associated pain. It has been shown that the young animals show a negative response judgement at 6 and 22 hours after dehorning (Daros et al., 2014). This coincides with other behaviour and psychological responses indicative of post-operative pain. So even though the animals are sedated to reduce pain and stress during and at least up to two hours after dehorning (Graf and Senn, 1999), the calves do suffer from pain afterwards, thereby negatively affecting their emotional state (Neave et al., 2013). Research has also shown that the animals, which are dehorned, do suffer from pain by observation of their behaviours indicative for pain or distress. These behaviours, like increase in head-shaking, grooming, ear-flicking, rubbing, standing up/lying down, hind-leg kicks, and fewer head jerks as well as decreased rumination, are all found in calves that had been dehorned at least during the first four to eight hours after cautery (although the anaesthesia might reduce those behaviours). This suggests that actual pain and/or wound sensitivity persist for at least four hours. Also physiological parameters like elevated cortisol levels are found during and, especially after dehorning. Sensitivity may last for 24 hours based on plasma cortisol concentrations that have been found 24 hours after cautery (Stafford and Mellor, 2011). Recently, Heinrich et al. (2010) reported that the pain can last even up to 44 hours after the surgery. So, in order to reduce pain and stress experienced by calves being de-horned, it is important to provide them with painkillers up to three days after the procedure.

3.2.4 Housing of calves

As mentioned earlier in this document, calves at most of the Dutch dairy farms are taken away from their mother immediately after birth and housed individually for about two weeks. Although individual housing is preferred by farmers on the basis of ease of management and perceived benefits of calf health, this way of housing young animals is criticized on welfare grounds as it limits the opportunity for the calves to perform social behaviours. Dairy cattle are social herd animals with a strong desire for social contact (Ouweltjes et al., 2003). It has been shown that the lack of companions in early life causes a reduced ability to cope with unfamiliar animals during initial encounters at mixing. Individually housed calves show increased aggression and antagonistic behaviour and reduced play behaviour and grooming compared with group-housed calves within two hours after mixing. Moreover, calves housed in pairs have a higher weight gain, which can be attributed to social facilitation of feeding. The pair-housed calves were able to draw on previous social experiences enabling them to observe and imitate the behaviour of the calves in the group that had previous experience with the feeding system at mixing (De Paula Vieira et al., 2010). In addition, individually housed calves are more fearful of novelty. Anxiety might delay habituation by preventing the calves from approaching and thus learning to recognize the novel object or by making them slower to consider it non-threatening. However, dairy cattle are faced with many challenges as part of their routine management, including changes in feeding environment, social regroupings, and interacting with new technologies including robotic milking equipment and automated feeders. Individuals that are more flexible might adapt more quickly to these changes, improving the lives of the animals and the farmers that work with them (Gaillard et al., 2014). Furthermore, research that has been done on housing new-born dairy calves in pairs did not have a higher incidence of diarrhoea or cross suckling (Chua et al., 2002). Farmers should consider keeping new-born calves in at least pairs of two, as this benefits their social behaviour developments, their emotional state, and overall welfare without necessarily impairing the animals' health (see Figure 14).



Figure 14. Housing of new-born calves in pairs.

As mentioned earlier, the way of housing new-born calves individually differs per farm. Often one will find the igloos, as shown in Figure 15, in which calves are individually housed. For calf housing it is important that housing is draught free, gives proper shelter to the animal if placed outdoors, and has comfortable bedding like straw. It would be good if calves can at least see each other, or even better have the ability to have physical contact, since (even though they are very young) they are social animals.



Figure 15. Individually housed calf in an igloo outdoors with straw bedding.

Individual housing of calves indoors can be depicted in Figure 16. Although housed in individual boxes, these animals can have physical contact, with each other and have the ability to suckle the nipple-bucket.



Figure 16. Individually housed calves in individual boxes indoors. Limited physical contact is possible and nipple-buckets are provided.

Recently, Eyes on Animals observed a new type of calf housing (see Figure 17). This system comes from the United States of America. Although the animals in this type of housing cannot see each other, they can see on both sides, which might make their environment more interesting. Both sides (including roof) can be fully opened or closed, however the farmer has to be careful for draught.



Figure 17. New type of housing system for new-born calves.

Although the animals in Figure 18 can see each other, these individual boxes are very dark. Also, an open pail (without artificial teat) is in front, resulting in no possibility for the animals to satisfy their suckle motivation.



Figure 18. Individual wooden boxes to house new-born calves where no physical contact is possible and visual contact limited.

If moved over to the group housing at an age of about fourteen days, it is also important that the animals are housed in a draught free environment with sufficient proper bedding and access to both water and roughage is provided. In addition, artificial teats to still satisfy their strong suckling motivation should also be present. A poor housing condition for young stock is represented in Figure 19. The concrete flooring is not only very dirty, wet and full of slurry, but the lying area in the back is as well. The chain of the manure scraper can cause injuries on the hooves of the calves (Hulsen, 2005). Furthermore, there was nothing to do or explore for these animals, which made them look very bored.



Figure 19. Young stock housed in poor conditions: dirty flooring and hard lying area.

3.2.5 Housing of dairy cows

The environment, especially the housing system, is an important factor in the overall welfare of dairy cattle. In general, dairy cattle are kept in cubicle housing with slatted concrete floors for most part of the year. This housing system causes welfare problems. EFSA (2009) concluded that leg and hoof disorders, the major welfare problems for dairy cattle, are a direct result of the cubicle houses, even if well managed. Standing and walking for prolonged periods on concrete floors, or floors that are wet or covered in slurry can cause severe foot disorders. Concrete flooring has a higher risk to cause hoof disorders compared to pasture and straw-yards. Nevertheless, concrete slatted floors covered in slurry still can often be found on dairy farms. Furthermore, (solid concrete) floors are often too slippery, dirty, and wet from the manure leading to cattle falling or slipping, and risking bruising and serious injury. The problem with slatted-floors is often the size of the space between the slats, as the optimal sizes are insufficiently applied in practice (Ouweltjes et al., 2003). A too narrow space between the slats will prevent manure from falling down in the pit, which will result in dirty and slippery flooring. If the space between the slats is too wide, cows might injure their hooves by making missteps, which could result in a higher prevalence of lame cows. Additionally, floors are often too hard for the dairy cows (Ouweltjes et al., 2003). It has been shown that dairy cows prefer standing on a soft surface, as in a straw-yard system, rather than on a concrete floor in most cubicle barns (Somers et al., 2003). The preference of cows for soft surfaces over concrete was also showed by Hulsen (personal communication, 2014), as can be seen in Figure 20. This picture clearly shows that all cows walk in line along the strip of rubber flooring. Although there is more space along the sides, cows chose to walk in a line on the rubber. Rubber is softer and seems to give them better hold.



Figure 20. Cattle walking all in line at the rubber slip, since they prefer soft surfaces with grip (see right photo for anti-slip grooves) over concrete which is on both sides (Hulsen, personal communication 2014).

Furthermore, if dairy cows are not kept on pasture for parts of the year (i.e. they are kept in a zero-grazing system) there is an increased risk for lameness, hoof problems, teat trampling, mastitis, metritis, dystocia, ketosis, retained placenta and some bacterial infections (EFSA, 2009). Moreover, it has been shown that outdoor grazing benefits hoof-, udder- and leg health, but also gives the animals the opportunity to express natural behaviour like grazing. Indoor flooring that is wet and dirty with urine and manure (see Figure 21) causes a high risk of infection because the hooves

become soft, whereas on well-managed pastures the risk of infection is lower due to dryer hooves (Hulsen, 2005).



Figure 21. Dirty slatted-flooring which causes a high risk for hoof infections.

The slippery slatted flooring can cause discomfort in cows, as it can impede the animals in self-grooming and moving (Hulsen, 2005). In addition, if on pasture cows are not hampered by physical barriers when they are lying, or have to stand up/lie down. In addition, on pasture cows have more space to express social behaviours (Leenstra et al., 2011). Being outside provides animals also better exercise opportunities and an environment of fresh air and full day-light. However, when stocking rate is too high and new pasture is not made available at regular intervals, there is an increased risk of parasitism, inadequate energy and fibre intake, inadequate water intake and high competition for feed and water in pastures (EFSA, 2009). Also, being outside means cattle are more exposed to all weather conditions and the farmer has less control on feed intake and manure management. As mentioned earlier, 30% of the Dutch dairy cattle are kept indoors throughout the year. Epidemiological studies in The Netherlands revealed that hoof-health was worse during indoor cubicle housing than during pasturing. The majority of cows have hoof disorders at subclinical level, and many cows exposed to concrete flooring have one or two hoof disorders at the same time impairing the welfare of the animals (Somers et al., 2007).

Often in cubicle housing systems the walk-/connecting alleys are too small for the nowadays big Holstein cows. Cow often end up in dead-end corners with little escape routes for low ranked animals causing more fear and agonistic behaviours (Ouweltjes et al., 2003). Furthermore, stall design and bedding (quantity and quality) should be appropriate to reduce the probability of intra-mammary infection. However, the lack of facilities to take care of cows with systemic mastitis is one of the highest risks for causing poor welfare due to the increased discomfort, pain and disease duration. Nowadays, a cow with mastitis lies down in her cubicle with her infected udder on the cubicle flooring. After she leaves to feed herself, another cow will lie down in her cubicle, this time putting her healthy udder on the infected cubicle flooring, probably resulting in a new mastitis case. Poor cubicle design also leads to an increased risk for the development of metabolic and reproductive problems (EFSA, 2009). If cubicles are too small, there is a high risk for stepping on teats,

bruising, damage to skin, and abnormal locomotion when lying down or standing up. Often the older stables are not adjusted to the current large Holstein Friesian cows (Ouweltjes et al., 2003), see Figure 22.



Figure 22. Big Holstein Friesian cow lying in a too short cubicle causing her to lie down skewed against the iron bar.

As can be seen Figure 23, too small cubicles cause deformations in the back bones of the animals since cattle are leaning against the iron bars for at least eight hours a day. Another example of too small cubicle housing can be seen in Figure 24. Half of the cows on the picture are still standing since they are hindered by the head- and withers bar to lie down with a proper head swing. The lying cow in front on the right side also has not enough space for her head. Head- and withers bars are often used to make sure the cows lie down in their cubicles in such a way that manure ends up on the slatted floor and not in the cubicles. However, if improperly adjusted it can cause discomfort for the animals.



Figure 23. Cow with deformations in her backbone due to too small cubicles.



Figure 24. Too small cubicle housing as about half of the cows are still standing: they are probably hindered to lie down with a proper head swing. The lying cow in front on the right side also has not enough space for her head.

In addition, too hard cubicle flooring can cause welfare problems and discomfort, since it causes skin damages and swollen hocks as depicted in Figure 25. The swollen hock is caused by landing (while lying down) or by lying on a too hard surface (Hulsen, 2005).



Figure 25. Cow with swollen hock and skin damage caused by too hard cubicle flooring.

The design of some cubicles and tie-stalls, including presence of walls and the positioning of neck-rails and brisket-boards, is such that the forward movement of the body of the cow when changing position from lying to standing is thwarted (EFSA, 2009). If a cow stands up in a normal way, there comes a point where she is over three meters long. This space can often not be provided in the current cubicle housing (see Figure 26). This confined space can cause abrasions (see Figure 27) due to rubbing against the (rough) surface of the cubicle floor; the cow cannot make the specific cow-head swing movement, resulting in her standing up uncomfortably and abnormally (Hulsen, 2005). The confining space also causes cows to lie in unnatural positions, which impairs the cow's comfort (Ouweltjes et al., 2003).



Figure 26. The wall in front of the cow will hamper her in making a proper head-swing to stand up causing her to stand up/lie down in an unnatural way that can result in injuries and bruises on her legs and flank.



Figure 27. Abrasion on the right-hind hock of a cow as the result of improper housing.

Moreover, the height of the feeding rack often does not suit the average cow's withers height causing bumps and abrasions on the cow's front body (Hulsen, 2005), see Figure 28 and 29. Additionally, the feed is often not optimally reached due to concrete ridges at the feeding fence.

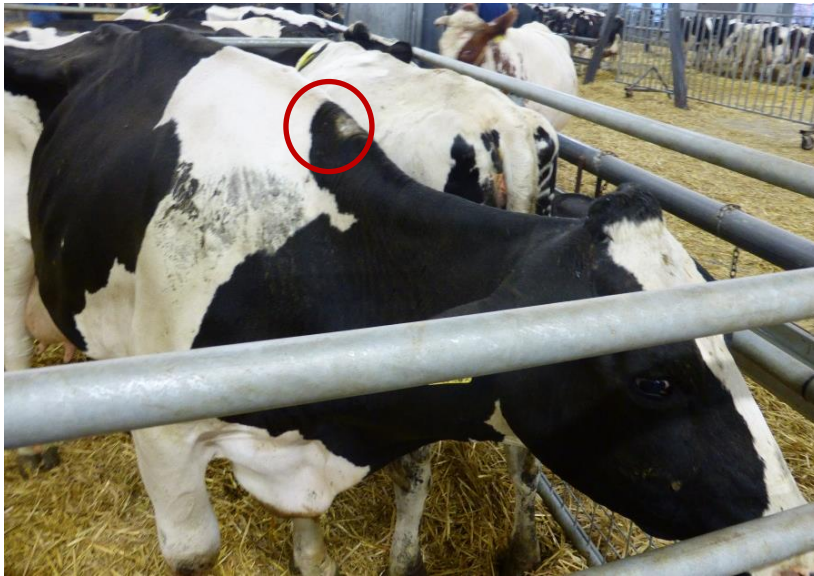


Figure 28. Cull-cow showing skin damages caused by a permanently misadjusted height of the feeding rack.



Figure 29. Misadjusted bar on the feed alley causing skin damages.

The water troughs are often misplaced, filled with dirty water, and with insufficient capacity; this causes queues, that often results in stress for the low ranked animals (Ouweltjes et al., 2003), see Figure 30.



Figure 30. Queues due to misplaced drinking troughs, as the animals cannot pass each other in the narrow passageway. In addition, the passageway is very dirty and slippery and has a stair, which increases the risk for accidents.

Old barns (often built in the 1980's) are often not well ventilated and dark as there is insufficient daylight coming in. Calving boxes (pens where pregnant cows can give birth in) are still not found at every farm making cows sometimes give birth in the herd on the slatted floor, which causes a lot of stress, discomfort, and unhygienic conditions for both the cow and the new-born calf.

Overcrowding and high livestock densities can cause unhygienic conditions and aggressive behaviour around feeding places (Ouweltjes et al., 2003). Figure 31 shows a cow with very dirty sides which could be caused by either wet cubicle flooring, too few cubicles available for the herd making the cow have no choice but to lie down on the slatted floor, or she fell down on the slatted floor as it could have been too slippery. Not only her sides but also her lower legs are dirty, indicating bad manure management on the stable floors (Hulsen, 2005).



Figure 31. Cow with very dirty sides, possibly caused by poorly managed housing conditions.

In addition, the frequent re-grouping of cows according to, for example their lactation phase, causes increased aggression due to the fact that cows have to re-establish hierarchies. Increased aggression

in the herd can cause lameness, resulting in poor welfare and impaired production. In large herds the number of aggressive interactions per cow is reported to be greater (EFSA, 2009).

Since cows have a strong motivation to lie, and lie about 7-15h per day it is important that their lying area is suitable and comfortable (EFSA, 2009). Hence, EFSA (2009) recommended a lying area of at least 2.7m^2 per heifer to avoid negative impact on welfare and production. A suitable cubicle design for the current dairy cow includes a cubicle width of at least 1.8 times cow hip width. Cubicle design should be such that injuries are prevented, and standing, lying or defecation movements are not impaired. More specifically, Hulsen (2008) recommends a cubicle design in which the lying area is bigger than 1.80m with a total cubicle length of 2.75m . However, since a cow needs to make a head swing in order to stand up in a proper way another 50cm have to be calculated additionally on the cubicle length. The wither pipes have to be at an height of about 1.25m , and the most comfortable cubicle flooring would be at least 20cm sand bedding. Rubber mats as cubicle flooring are not necessarily better for cow welfare, since they need proper management as well (e.g. cleaning, replacement if damaged). Figure 32 and 33 show cubicles where cows are not hindered by head- or withers bars in their lying down or standing up behaviour. In both cubicles the cows lie in deep litter that enhances their lying comfort.



Figure 32. Deep litter cubicles with no hindering withers and head bars.



Figure 33. Cow in cubicle with no hindering head bars, and sufficient litter, which increases her lying comfort.

In general, housing conditions are often a cause of impaired welfare as they are not well adjusted to size of the cows and give insufficient possibilities to the cows to perform important natural behaviours, as lying, standing and walking. Also poor management and stockmanship, as to inadequate locomotion monitoring and hoof care, cause in health and welfare problems. Also in well managed cubicle houses, improvements to cubicle house design or alternatives to cubicles (e.g. straw yards) should be considered. When possible, dairy cows and heifers should be given access to a well-managed pasture or other suitable outdoor conditions, at least during summer time and dry weather.

3.2.6 By-products: redundant calves

In order to produce as much milk as possible, dairy cows have one calf each year. As mentioned earlier, this results in about 1.5 million calves each year. About 35% of the calves are reared to replace the cull-cows. Male calves and the rest of the female calves that will not replace the dairy herd cannot be used in the dairy industry. This results in lots of redundant calves, nearly one million. These calves are unwanted by-products of the dairy industry and they are not worth much. Formerly, over 50 years ago most redundant dairy calves were killed or euthanized on the dairy farm, since no profit could be made out of them. This is because Holstein Friesians are bred for milk production and not for meat, these animals are relatively lean. Nevertheless, the veal meat market has been developed as around 1950 the skimmed milk powder surplus was huge, and the killing of these new-born calves was ethically unacceptable. The Dutch veal meat market demands are however very low compared to the supply, and therefore over 90% of the produced veal meat is exported (PVE, 2013). Nowadays, the price for the new-born calves for the veal industry is still low. For high quality Holstein bull-calves (14 days old) merely €65-€80 will be paid, whereas for young animals of less quality only half of the price will be paid (Van der Horst, 2014a). This makes it unprofitable for dairy farmers to invest in the new-borns in their first few days of life when they are sick or underweight. Up till now, veterinarians still euthanized about 40.000 calves that are below 36kg each year, as these animals are not accepted at calf markets (Van der Horst, 2014b). However, this requirement is rejected for 2015, as this raised ethical concerns regarding the current dairy industry and the current way of dealing with redundant new-borns. There are about 1990 fattening farms for veal calves (PVE, 2013).

Only one organic veal fattening farm exists in The Netherlands meaning most organic calves are fattened on conventional fattening farms (Figure 34a). An average Dutch veal farm houses about 850 young calves (Eggens, personal communication 2014). The calves are housed in groups on slated floors (see Figure 34b). During the 2-5 weeks starting period they are often housed in temporary individual pens (see Figure 34c).



Figure 34a. Conventional veal farm.



Figure 34b. Slatted floors in veal calf pens.



Figure 34c. Individually housed veal calves at a Dutch veal farm.

Often new-borns arrive at the veal farm with low iron levels in their blood, as at least 50% of the calves suffer from anaemia. Those are given an iron injection at arrival, and a second one at 12-18

weeks of age if needed (Eggens, personal communication 2014). As mentioned earlier, although The Netherlands produces lots of redundant calves, about 865,000 calves are imported mainly from Germany, Poland, and Belgium. One veal farm often takes calves from all over Europe all coming from different farms. This results in calves with various states of health, as they all have a different origin and most have been on long-distance transport. After long distance transport especially, most calves are weakened. In the first ten weeks about 3-4% of the animals die, mainly from chronic diseases like respiratory diseases (Eggens, personal communication 2014).

On average the animals grow 1kg per day. From an average weight of about 45kg the animals will be fattened in about six months to a carcass weight of about 155 kg (Eggens, personal communication 2014). In the veal meat market, the colour of the meat is very important, as most consumers demand pale meat. About two-third of the calves in The Netherlands are fattened for pale veal. According to EU Council Directive 91/629/EEG and Dutch legislation ('Kalverbesluit') the haemoglobin level of veal calves has to be above the critical 4,5 mmol/l. On average, their levels are between 5.0-5.5 mmol/l (Eggens, personal communication 2014), whereas 7.5 mmol/l is normal. Rosé veal with the Dutch 'Beter-Leven keurmerk' (Better-living label) comes from calves that have a haemoglobin level of at least 6.5 mmol/l. Pale veal is produced by fattening the animals on a milk-based diet with limited roughage, resulting in low iron levels in the blood and therefore pale meat. This milk-based diet impairs animal welfare tremendously. Cattle are ruminants and therefore need to ruminate. By feeding calves mainly milk, the rumen develops inadequately, and abomasal erosions, ulcers, scars or combinations of these occur. Stereotypies as tongue rolling and high prevalences of bar licking are often observed in veal calves (EFSA, 2006). Roughage is also a source of iron, therefore this is given in limited amounts. On average a minimum of 100-250gr (shredded) straw per calf per day and about 1kg dry matter of corn silage per calf per day is provided. The content of milk replacer differs per stage of age. Rosé veal calves are fed only concentrates and limited roughage from three months of age on, after first a mainly milk-based diet. Calves fattened for pale veal are slaughtered at a maximum age of eight months. Rosé calves will be slaughtered before twelve months of age.

4. Life after the dairy farm

There comes a point in time that a cow has to leave the dairy farm because she no longer produces enough milk to be profitable or because she has too many ‘problems’ such as lameness, mastitis, or difficulties in getting pregnant. These “culled” cows will be either sold via a livestock market to a slaughterhouse or head straight from the farm to slaughterhouse. The situation is the same for the dairy calves that will not be reared to replace the current dairy herd. These young animals will be mainly sold via the calf market. They too end up in slaughterhouses after spending a couple of months at the fattening farm. In this section the events of life after the dairy farm for both the cull-cows and the calves will be discussed. This will thus include Dutch cull-cow and calf markets, and the transport and slaughter of the culled-cows and calves.

4.1 Dutch cull-cow markets

In the Netherlands, there are three cattle markets – Leeuwarden, Bunnik and Purmerend. These markets take place once a week. The farmer will sell his cull-cows to a cattle trader or brings them himself to the cull-cow market. The journey to the market is usually not very far in distance, but in reality it can take many hours as each farm only has a few individual cows to be culled per week. The livestock truck therefore makes numerous stops at different farms in order to fill the truck before going to the market. The animals arrive the evening before or in the early morning and by then they have usually missed one milking session. At the Leeuwarden market most of the cows arrive the night before. At the cattle market in Leeuwarden many improvements were made to ensure welfare and the facilities are quite good. All the cows have straw bedding and access to drinking water, and there is a small mobile-milking machine to relieve some cows with full udders. Cows that arrive the evening before the market (from 19:00 onwards) will be unloaded and housed inside the market hall. They will be tied to railings by chains that have all the same length and equal distance apart so the cow is still able to drink, lie down and stand next to the next cow without getting entangled (see Figure 35); or they will be housed in the loose group pens where the animals are not tethered (see Figure 36).



Figure 35. Cull-cow at cattle market in Leeuwarden with access to drinking water, the ability to lie down on straw bedding.



Figure 36. Group housing pens at Leeuwarden cattle market for cull-cows including access to drinking water and straw bedding.

Eyes on Animals visits the cull-cow market in Leeuwarden on a yearly basis and has seen many improvements put into place by the market board. The facilities of this market are the best in the Netherlands and perhaps in all of Europe, nevertheless one main concern remains. Traders and farmers continue to send animals through markets that should either have been sent earlier when they were still healthier, or should have been sent straight to slaughterhouses. Our most recent visit of the Leeuwarden cattle market was made on the (evening of) 6th and 7th of August 2014. 236 cull-cows were sold on the 7th of August (starting at 06.00h). It was again striking how many culled-dairy cows, particularly from the Holstein-Friesian breed are in poor condition. The animals that were seen that day were almost all very thin; many were weak, ill, or (very) lame (see Figure 37 and Figure 38). Behavioural and physiological indicators of animals not feeling well were observed. Examples are: visible eye-white (see Figure 39), fully lying down on the side with head down, rapid breathing, cold and droopy ears and pacing on limbs back and forth, empty rumens and swollen joints.



Figure 37. On the right a very lame and emaciated cull-cow standing skewed. By standing in this position the animal tries to relieve some of the weight from her painful hooves.

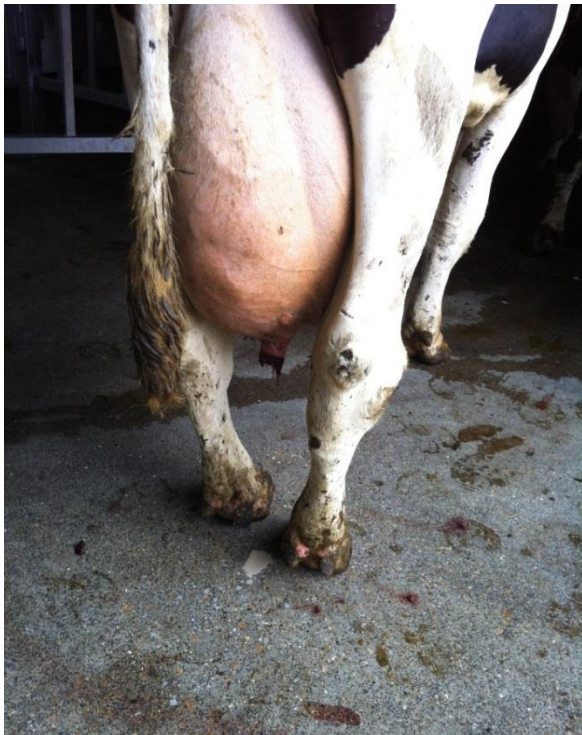


Figure 38. Cull-cow lame on her left hind leg with swollen hocks with abrasions likely due to poor housing conditions. She also has a wounded teat dripping both blood and milk. When she arrived at the market she had a dirty callus on her teat but the next day she had kicked off one of her teats possibly because of the pain/irritation the callus caused.

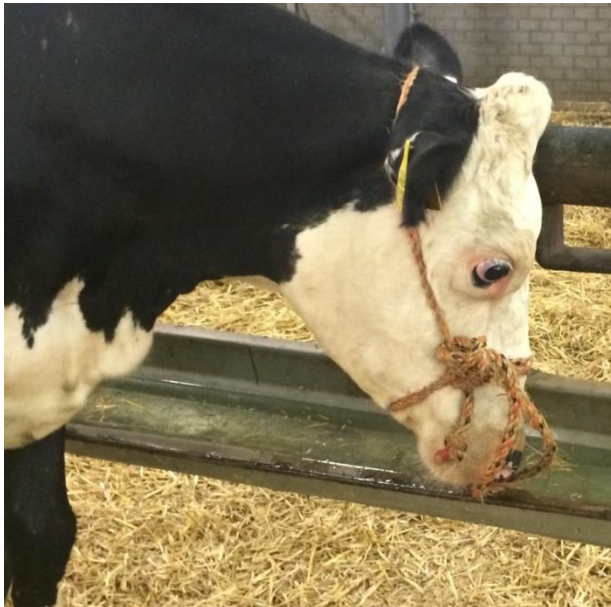


Figure 39. Highly stressed cow according to the visible eye-white.

Besides many lame and skinny cows, also dripping udders were found. This means that pressure on udders was so high that the cows let go of their milk. The pressure on the overfull udders may be painful for the animals, as one could relate to human women and their sore full breasts when nursing a new-born baby. Some experts say it might be less painful for multiparous cows, as their udders became less sensitive and tight compared to heifers. Nevertheless, one could say that the fact the cow lets go of her milk indicates discomfort.

During the visit we found three extreme cases of cows that had to be humanely killed at the market. First case was on the evening of 06-08-2014 when Eyes on Animals first entered the market and found a 'downer' cow in the unloading area. A pale of water was found next to her and the market leader told Eyes on Animals he had already provided the cow with a calcium injection to see if that would help her (see Figure 40). Cow (NL3804 4259₉) was very thin, had deep sunken eyes, and old wounds on her hocks were found likely caused by the housing system. Even a calcium injection could not get her onto her legs anymore. According to the veterinarian who came shortly thereafter, she was suffering from mastitis and milk fever. She was euthanized by injection.



Figure 40. ‘Downer’ cow at the cull-cow market in Leeuwarden with mastitis and milk fever.

On 07-08-2014 another cow had to be euthanized at the market as she had injured her leg so badly that she was unable to stand up or walk. The third cull-cow that had to be humanly killed at the market will be explained in the section ‘Transport of cull-cows’.

On 04-08-2014 Eyes on Animals made an unannounced visit to the cull-cow market in Bunnik (Utrecht). At this market dairy and beef breeds of cattle are sold. Here no straw is provided, as the animals arrive in the morning and only stay for a few hours at the market before they are transported to the slaughterhouse (Figure 41). Nevertheless, recently access to drinking water has been provided. Animals at this market were found tied up on tethers that were too short to permit the animals to lie down. Also, a mobile milking machine was not available, and cows with dripping udders were found. The market leader states that cows with dripping udders can be milked by hand. Just as at the Leeuwarden cull-cow market, most of the cull-cows at Bunnik had a low body-condition score, but all were standing.



Figure 41. Thin cull-cows on concrete flooring at the cattle market of Bunnik.

4.2 *Transport of cull-cows*

After the animals are sold at the market, they are loaded onto trucks again. This creates again stress for the animals, particularly as they are now often in different groups and have to re-establish a hierarchy. The trucks will bring the cows to slaughterhouses in the Netherlands, but also travel to northern Germany, Belgium, Luxembourg and sometimes France. Due to the various lame, sick and weak cull-cows, loading can cause struggles and painful incidents as many cows are not able to walk appropriately. It is very important that handling be done calmly and professionally. In general, the handling of the cattle inside the market went quite calmly in Leeuwarden, as little hitting and shouting was used. However, during loading the trucks, cases of aggressive handling were observed. A number of cows struggled with climbing up the steep ramps of the trucks. This was particularly stressful for animals that were lame. Eyes on Animals advised the market managers to install loading docks at Leeuwarden to create a less steep ramp for the animals, which will make it easier for some of the fragile cull-cows to get into the trucks. During the recent visit of Eyes on Animals one cow (NL7653 7125₀) fell down the steep ramp of the truck she was to be loaded into. This same cow had been observed two hours earlier by the Eyes on Animals inspection team and they saw her lying on her side completely lethargic. She looked weak, had deep sunken eyes with a clearly visible eye-white indicating stress and was breathing abnormally. Despite the Eyes on Animals team drawing the market leader and numerous cattle traders' attention to her, she was allowed to be sold. It was thought that she was just resting and was fit for transport. The NVWA was present on this day but we are not sure if they saw her and if they were also concerned. The cattle traders and drivers got her on her feet for loading. She walked towards the loading area, but was clearly lame. While trying to load her she was too weak to climb the steep ramp herself. Eyes on Animals inspectors warned the truck drivers about the condition of the cow, and reported how they had found her on the beginning of the day. Unfortunately at the time they did not agree with us, but thought the cow was just being stubborn. The truck drivers had to grab each other's arms behind the cow to support her while pushing her forward into the truck. When she was half inside the truck, the cow collapsed. Despite

hitting, kicking, and shouting to her, she remained apathetic. Two drivers put a rope around her head and while trying to pull her up, the cow rolled over onto her side and fell down the ramp, see Figure 42.



Figure 42. Unfit cull-cow that fell down the ramp during loading.

After falling the cow remained apathetic, she was too weak and shocked to move or get up. The drivers, wanting to now close the back door and drive off, pulled her some more by the rope around her head to get her off the ramp, see Figure 43.



Figure 43. Truck driver trying to get the collapsed cow off the ramp so they could close the door and take off.

The cow showed lots of eye-white and was breathing very fast indicating severe stress and/or pain. At this point Eyes on Animals decided to call the market leader to have the veterinarian come back to the market immediately. Approximately 30-40 minutes later the veterinarian euthanized this animal. Although this cull-cow did not make it into the truck, the remaining others did. This does not imply though that the others were all fit for transport. According to the EC 1/2005, animals must be “able to move independently without pain” in order to be legally considered fit for transport. Many cows that were loaded showed signs of pain, as they refused to put weight on certain lame legs, made unequal steps and movements, showed arched backs, hanging ears, ‘dive-postures’, low heads, deep

sunken eyes, and had problems with walking or standing still. For more signs of pain in cattle, see Appendix I.

Also, in 2012, Eyes on Animals stopped to check on a truck with dairy cows in Belgium. Here one cow was lying down and she could not get up. She had ropes tied around her hind legs (see Figure 44), likely because she had already had trouble walking on the farm after calving (e.g. doing the splits due to wobbly legs).|



Figure 44. Cow with ropes tied around her hind legs unable to get onto her feet anymore, found in a truck in Belgium.

The general attitude of the dairy industry and even authority still appears to be "if she can walk, then she can be loaded", regardless of the behavioural and physiological indications of pain and discomfort. From Leeuwarden, the cows are mainly sent to slaughterhouses in The Netherlands and Germany, or sometimes in Belgium, Luxembourg, or the North of France; so transport would often not take longer than 2-5 hours.

Although most Dutch cull-cows are not sent on long transports, it is important to mention that The Netherlands does send many pregnant heifers and lactating cows on long-distance journeys lasting days and even weeks. The Netherlands sends pregnant heifers and cows from the dairy industry to countries such as Russia, Kazakhstan, Greece, North-Africa and Turkey. This is done by truck and by boat. The gestation period of a cow is nine months, but as with humans cows can give birth a few days/weeks earlier or later. Eyes on Animals has observed numerous pregnant heifers giving birth on board the vehicle or boat, which can be caused by new stress factors they are exposed to during export (quick change in temperature, higher densities, less frequent access to feed and water), or just by the fact that cows can give birth earlier. According to EU legislation, the cows are not to be transported past the 90% mark of their gestation period. Most of the cows are thus slightly over 8-months pregnant, when they are sent for export. The export industry insists that these pregnant cows are taken care of extremely well during these journeys, as the live-stock is of high value. However, teams from Eyes on Animals and Animal Welfare Foundation have seen many incidents where animals gave birth during these long-distance exports.

Several years ago Eyes on Animals was informed about a truck transporting pregnant Dutch heifers to Greece that had numerous cows and their new-born calves die on the journey, as many had given birth on board. In 2012, a team from Eyes on Animals and Animal Welfare Foundation spent a week at the Bulgarian/Turkish border to inspect trucks bringing EU animals into Turkey. At the border they saw a Dutch livestock transport company with Austrian pregnant heifers on board. One cow was lying down, had sunken red eyes and was breathing fast (see Figure 45). We found blood and after-birth near her body. Later the driver informed us she had given birth and the new-born calf had been placed in the swan-neck of the vehicle (see Figure 46). The drivers had fortunately managed to milk the cow to get the vital colostrum and informed the team that they had bottle fed the calf. Together it was decided to call a veterinarian to look at the mother cow, who was very weak and refusing to stand up. Thanks to side-access doors on the vehicle, the Turkish private veterinarian and driver were able to enter into the middle of the truck with a medicine bag and give the cow the necessary fluids and injections.

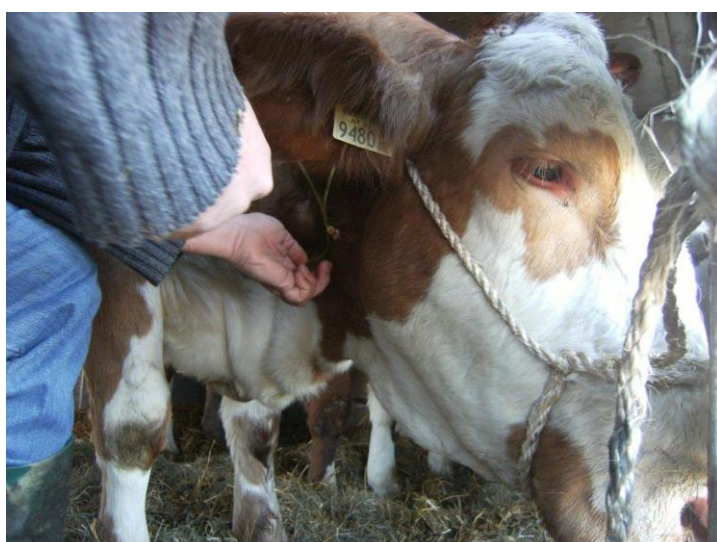


Figure 45. Austrian heifer on Dutch transport that gave birth on board during journey to Turkey. She had to get an injection to get up on her feet again



Figure 46. New-born calf on Dutch transport truck, born during transport to Turkey.

In August 2014 a team from Eyes on Animals and the Animal Welfare Foundation was called by the Turkish official border veterinarian, as another incident had occurred and the veterinarian was fed up. Four livestock trucks from a Polish company had arrived with pregnant heifers from Germany in horrible condition on board. One of the taller heifers had open wounds on her back and blood was smeared on the roof, due to insufficient headspace. She was forced to travel the whole time with her back rubbing against the roof, resulting in injury. Three pregnant heifers had died (see Figure 47 and 48). It is thought that they had not received adequate liquid during the journey as they all showed symptoms of dehydration. To date, the exact cause of their death remains unknown, but as one can imagine, being heavily pregnant and going from moderate August temperatures in Germany to 36 degrees at the Turkish border three days later, being cramped inside a vehicle with limited access to water and reduced feed, could have caused the deaths of these animals.



Figure 47. Dead German heifer that had died during transport, found at the Turkish border.



Figure 48. Another dead German heifer found at the Turkish border that died during transport.

In September 2012, the German animal-welfare organization Animals' Angels investigated the transport of Dutch lactating dairy cows carried out by the transport company Van De Wetering in Brakel. This company had been transporting lactating cows for years from the Netherlands to all over the UK on a weekly basis. The lactating cows were being collected and assimilated at the collecting point in Brakel on the evening before export was to take place. The cows would be milked shortly before loading the next morning. The livestock- trucks departed from Brakel and headed to Hoek van Holland where they would take a ferry over to Killingholmes, United Kingdom. Just the ferry crossing [without dis-/embarking times or delays] takes eleven hours. According to EC 1/2005 the foreseen milking intervals must not exceed twelve hours because lactating cows suffer severe pain when their udders are too full. Animals' Angels trailed four trucks from Van de Wetering on this route. From the Dutch station in Brakel to their arrival at the port of Killingholmes, UK the animals were on the trucks for at least fourteen hours. Animals' Angels proved that it was impossible to transport lactating cows on this route without exceeding the milking intervals. Furthermore, during all these years there was no control post in close vicinity of Killingholmes (UK) where they could stop to unload and milk the lactating animals. There are also no milking facilities at either the port of Hoek van Holland, NL or the port Killingholmes, UK. Once on board the ferry it is also impossible to milk the cows. Every delay of the ferry (technical problems, weather conditions, etc.) would have a further detrimental effect on the animals as milking intervals would be prolonged. The driver admitted that they transport lactating cows regularly on journeys of eighteen hours without milking them. Only when the journey exceeds eighteen hours (when the final destination is in the north of the UK) they plan a stop at a private facility to milk them, which is not a registered control post and thus also in violation of the EC 1/2005 legislation. The lack of milking leads to an accumulation of milk in the udder. As milk build-up continues, the udder becomes subjected to increasing pressure that becomes so great that milk leaks from the udder. This condition leaves the cow vulnerable to infections as the teat opens and allows milk to flow out but also allows bacteria to get in the udder (Waage et al., 2001).

Eyes on Animals is a small organization with a handful of volunteer- inspectors. Thus, we do not have more specific examples from the field showing the transport of lactating cows from the Netherlands to countries abroad. The fact that a Dutch transport company had been doing this on a weekly basis for a long time, however, leaves one with the suspicion that other transport companies are likely doing the same, and government authorities may be turning a blind eye to such practices. Therefore, it is highly unlikely that this was an isolated incident. It is disturbing that, in many cases, NGO's are needed to expose violations that without their practical work go unnoticed. Government authorities responsible for checking export documents and transport companies have to properly carry out their practices.

4.3 Slaughter of cull-cows

There are numerous cattle slaughterhouses scattered throughout The Netherlands, see Table 1. Additionally, there are also several small slaughterhouses in the country, as for example Van der Meulen in Wolvega. Most of the slaughterhouses in The Netherlands are specialized in a type of cull-cow, for example lame cows or very thin cows.

Table 1. Cattle slaughterhouses in The Netherlands and their capacity (PVE, 2013).

<i>Slaughter capacity (animals/year)</i>	<i>Company</i>	<i>Location</i>
10,000-25,000	Tomassen	Someren
	Wouters	De Hoef
	G.J. Hutten en Zn	Nieuw Heeten
	Slachthuis Nijmegen	Nijmegen
25,000-75,000	Wadden Vlees	Dokkum
	Abattoir Amsterdam	Amsterdam
	Van Hattem Vlees	Dodewaard
>75,000	Vion Food Group	Tilburg
	Exportslachterij J. Gosschalk en Zn	Epe

When the animals arrive at the slaughterhouse they will get unloaded and before slaughter they are to be checked by a veterinarian of the NVWA (Dutch government inspectors). After some hours of waiting, cows will be slaughtered. On the 27th of July 2014 Eyes on Animals visited Vion Food Group in Tilburg. Good things seen in this slaughterhouse were the bull-racks (to prevent mounting behaviour which can lead to leg and back injuries) present all along the ceiling of the lairage and raceways used to move bulls towards the restraint box, see Figure 49.



Figure 49. Bull-racks were present all along the ceiling of the lairage and raceways used to move bulls towards the restraint box.

In addition, at Vion, they have an unloading dock to avoid cattle having to walk down steep ramps. On this dock, there are anti-slip ridges to prevent animals from slipping (see Figure 50). They also have solid panels along the last few meters of the raceway heading into the restraint

box to limit the amount of distractions the cattle are exposed to and to avoid leg injuries (ideally the solid panels would be higher, to prevent the view of taller cattle that walk through as well), see Figure 51.



Figure 50. Loading dock with anti-slip ridges at Vion Food Group slaughterhouse.



Figure 51. Solid panels along the last few meters of the raceway heading into the restraint box to limit the amount of distractions the cattle are exposed to and to avoid leg injuries in Vion Food Group slaughterhouse.

Besides anti-slip ridges, rubber on the loading dock/on the raceway in slaughterhouses and on truck ramps is also very important, as it makes walking less stressful for the animals by providing the animals with more grip to walk in a steady way. It is important that the rubber is soft for optimal grip, and that it is kept clean to prevent it from becoming slippery. By handling animals calmly, the animals will be less fearful and therefore defecate less. By applying rolls of rubber it is easy and cheap to replace the rubber (Hulsen, personal communication 2014).

Moreover, the design of the lairage at Vion Food Group is well thought. It allows fragile animals, that need to be more closely inspected, to enter an open middle area. If cows are not fit, they

can be stunned and bled out here, and the owner and transporter of the animal are recorded to eventually send out a penalty or warning. During the visit, 250 cattle arrived of which 22 Eyes on Animals would definitely not consider fit for transport as they showed very clear physiological and behavioural signs of pain. Several had arched backs to avoid putting pressure on certain legs, and flinched when touched. Figure 52 shows a cow that was checked by an Eyes on Animals volunteer. The very skinny cow had an infection in her hoof that caused her a lot of pain, which can be observed from her arched back, 'diving' posture, tucked belly, and empty rumen. Even when her sore leg was gently touched, she flinched.



Figure 52. Cull-cow is severe pain at Vion slaughterhouse.

Figure 53 shows another cull-cow at the Vion slaughterhouse. Both her infected eyes were covered by white puss and sealed shut from goo - it might be that she even became blind from this (as her bumping into other cattle was observed).



Figure 53. Cull-cow at Vion slaughterhouse with infected eyes, full of white puss and sealed shut from goo.

It is the farmer who is directly responsible for letting cows get into such poor condition in the first place, but the trader and transporter also carry responsibility as they have the duty to make sure

cows they transport are indeed fit for transport before buying and loading them. It is important that the NVWA veterinarians at the Dutch slaughterhouses send out a clear message to the farmers, traders and transporters as to what is acceptable or not. However, often this is not happening resulting in the farmer letting his/her cattle get into such poor condition, and traders and transporters still delivering them to slaughterhouses. It is a vicious circle that can only be broken when the players finally play their role fairly and correctly.

Another concern at cattle slaughterhouses, particularly ones that are fifteen years old and older and that have not replaced their equipment, is the change in size of the dairy cow. Cows have become bigger in the last fifteen years and restraint systems have to continually adapt to the change in the shape and size of the animals. Eyes on Animals has seen the back door of the restraint box coming down on the backs of some of the larger cows that day. This causes the cow in the restraint box to fall down on her hind legs. The concern is not only the pain it causes to the backs of the animal, but also that the fallen animal is now low to the ground resulting in the operator having a more difficult time in getting close to the head to shoot her correctly with the captive bolt pistol. Additionally, many culled dairy cows have leg and hip injuries and being hit in this area causes them to collapse on their already-sore back legs. This is a serious welfare issue.

The truck that was trailed by the Eyes on Animals inspection team (where one cull-cow collapsed during loading) on the 7th of August from the Leeuwarden market went to the Van der Meulen slaughterhouse in Wolvega, a small slaughterhouse in Friesland located 40km from the market. At the slaughterhouse, the animals were unloaded quietly, although while they came down the steep ramp it was clear that they were in pain and had difficulties coming down. Here we attempted to speak to the NVWA veterinarian of the slaughterhouse about fitness of cattle for transport and how to break the cycle of farmers letting their cows become so unfit and transporters and slaughterhouses also accepting them. As often the case with people supervising fitness at slaughter, the conversation was self-contradictory as the veterinarian first said it is forbidden by law to transport cows that are in pain. Later on the veterinarian said he had to accept a certain level of pain as otherwise he would not be able to accept any cull-cows anymore. We attempted to put his attention to one cow in particular that was standing with an arched back, wobbling back and forth on her hind legs to relieve some pain, and standing with her hind legs stretched out backwards, see Figure 54. According to her body and the position of her head it was clear she was in pain. Nevertheless, the NVWA veterinarian believed almost all cows have an arched back nowadays, and that wobbling back and forth is a tic in our dairy cattle. According to this veterinarian, this has nothing to do with pain. Eyes on Animals argues that people in the sector, including veterinarians, are becoming desensitized because what used to be abnormal is becoming the norm. People in the industry are losing the ability to see the difference between a healthy and a severely sick cow. A skinny, lame cow with an arched back, swollen infected joints and prancing feet is becoming the accepted state of fitness. It has become the norm. We also get the feeling that some veterinarians, particularly ones working all day in slaughterhouses, are turning a blind eye because it is too much effort to change the ways things are. They even go to justify their inaction by making statements that are simply untrue and at times absurd, but they often get away with it because they carry the title "Dr veterinarian".



Figure 54. Cull-cow in pain seen at the Leeuwarden market that had difficulty climbing into the truck and was later accepted at the Van der Meulen slaughterhouse and considered in “average” condition.

The same reaction of this being the norm was given when we discussed the condition of the cow in Figure 55, which was very thin and had her head hung low, had deep sunken eyes, a tucked belly, and was unwilling to put weight on her left front leg indicating lameness. One could also say veterinarians of the NVWA at the markets and slaughterhouses lack knowledge on these ‘cow signals’, as otherwise these unfit animals would never have been transported and accidents like the cow falling off the ramp as mentioned in section 4.2 would not have happened. It would be good to educate veterinarians more on important behavioural and visual signs of pain, sickness, and discomfort in cull-cows in order to reduce suffering of these animals in their last hours.



Figure 55. Cull-cow appearing unfit for transport but that was accepted by the NVWA at Van der Meulen slaughterhouse.

Considering the fact that most culled dairy cows in the Netherlands have poor body condition and are often lame, it can be assumed that the attitude is similar at other slaughterhouses as well. Eyes on Animals feels strongly that all those with a duty of care towards dairy cows on farm, or towards

supervising the health and welfare of cattle at markets and slaughterhouses, need to undergo training courses in cow signals. By being able to interpret the signals a cow gives, one can better enforce the legislation set out to protect them from pain on the farm, during transport and at the slaughterhouse.

4.4 Dutch calf markets

Calf-sales take place on a weekly basis at three livestock markets in Netherlands - Bunnik, Leeuwarden and Purmerend. Here the "by-product" calves from the dairy industry are sold; the male calves and the heifers that are not used to replace their mothers for milk production. Eyes on Animals has visited the calf-sale at Leeuwarden several times. Most recently, on August 12th 2014, Eyes on Animals visited the Purmerend livestock market. The calves had arrived the night before and came from farms all over the region in North-Holland. The calves are almost all two weeks of age, some slightly older. The calves are unloaded from livestock trucks at night and placed into group-pens inside the Purmerend market hall based on body weight (see Figure 56 and 57).



Figure 56. Group-pens for young calves at the Purmerend market.



Figure 57. Calves at Purmerend market resting in their straw bedding.

There is plenty of straw bedding in each pen. Some calves are sleeping, but many are vocalizing loudly. Upon our arrival at 7 AM, most of the owners of the calves were giving liquid to their calves via bottles. In a natural setting, calves will suckle from their mother at least every four hours and drink approximately seven litres of milk per day. At the market and during transport it is not possible to give them milk, as this may cause fatal diarrhoea. In addition, milk will make the truck's automatic drinking system dirty and at the market it is too much trouble to provide milk to the calves. The calves here are instead given water with sugar via a bottle (see Figure 58).



Figure 58. Sixteen-day old calf being bottle-fed water with sugar.

No injured or lame calves were observed, but several had dirty backsides, indicating diarrhoea. Additionally, some had patches of skin as fur was missing, mainly around their backsides and hind legs. We are told that this is because of the runs (i.e. runny poo-diarrhoea in very liquid form). The calves spent almost 24 hours at the market. They were not sold and re-loaded onto trucks until the late afternoon. From the market they go to farms mainly in The Netherlands, some will go to farms in Belgium but close to the Dutch border. At the farms, the calves will be fattened for veal meat.

4.5 Transport of calves

Calves from the dairy industry are transported at least twice, often even four times, in their lifetime. There are very few calves staying at the dairy farm fourteen days after birth. About 75% of Dutch new-born heifers and almost 100% of the male new-borns will be removed from the dairy farm shortly at approximately fourteen days. According to EU transport legislation, calves of less than ten days of age may be transported if the total distance is less than 100km and if their navel is healed. For long distance transport –up to nineteen hours, only calves older than fourteen days can be transported, as long as they are given a rest period of at least one hour after the first nine hours of transport. In this hour the calves should be given liquid and if necessary fed. After the total journey time is laid down they must be unloaded, rested and fed for 24 hours before continuing transport. Figure 59 shows calves being unloaded at the market.



Figure 59. Calves being unloaded at Leeuwarden cattle market.

Many Dutch calves are loaded in livestock lorries at the farm where they were born and brought to livestock markets where they have to wait for roughly 24 hours (without milk) to be sold and further transported to a fattening farm. Another fate for the calves is to be directly transported from the dairy farm (where they were born) to a fattening farm.

The Netherlands does not export a large number of young calves, although some do go to Belgian fattening farms. When the Dutch calves are ready for slaughter, they can be slaughtered in The Netherlands, but also in Belgium and even France.

The Netherlands is one of the world's largest importers of young calves. In 2005, the Netherlands imported 643,000 young calves. In 2013 this number increased to 859,000 (PVE, 2014, and this continues today. Every week lorries full of "by-product" dairy- calves from for example Poland, Lithuania, the Czech Republic, Ireland and Germany arrive into The Netherlands and are unloaded in intensive fattening farms here. These animals are almost always between three and six weeks of age when they undergo these long-distance and strenuous journeys from their birth-country to the Netherlands.

A calf does not develop rumen activity until around 2-3 months of age, and only if stimulated with roughage. Young calves are therefore still completely dependent on milk to get their dietary intake of calories, minerals and vitamins. A calf of fourteen days of age, if left with the mother, would drink from her once per four hours. On board of the lorries, there is only a water system available. Milk cannot be placed into these systems as it could clog it up and cause risk for bacterial growth. Therefore, during the entire journey, often lasting for nineteen hours (and more as cheating remains frequent in this transport branch) the calves are not being fed according to their behavioural and physiological needs. Another challenge is that calves need milk at this age, it is their only real feed, but actually it is unwise to give calves milk before transport, as this can cause serious stomach upset and diarrhoea, leading to dehydration which remains the number one cause of death among calves transported on long journeys. Another problem is with the design of the nipple systems on trucks- these metal water nipples are made for animals to press a lever with their tongue in order to release liquid (see Figure 60). Calves at this age do not yet know how to work with such a system. They often are not able to drink an adequate amount of water from these metal nipples during transport.

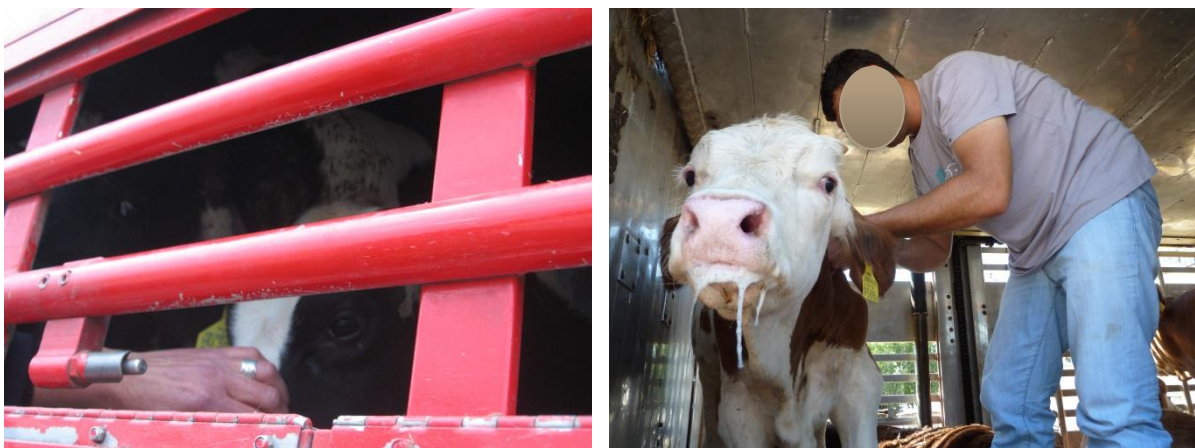


Figure 60. Metal nipple with lever unsuitable for suckling (left) and one of the many calves Eyes on Animals documented becoming sick during long-distance journeys (right).

It is for all these reasons that NGO's working on farm-animal welfare and even most veterinarians are unanimously against the long-distance transport of calves. Calves are very fragile to transport and unavoidable suffering from stress.

During inspections conducted out by Eyes on Animals and the Animal Welfare Foundation at the EU/Turkish border and at the German/Dutch border we observed calves of just several weeks of age crying out and sucking on the bars in a stereotypic way (see Figure 61). After a short time on board, calves will start crying out repeatedly and suck on the bars of the truck due to stress and hunger.



Figure 61. Calves of several weeks of age on a transport journey of 19 hours, sucking on the bars in a stereotypic way.

In May 2014 a team from Animal Welfare Foundation (AWF) heard that the Dutch transport company Mondfrans was transporting calves under two months of age from Lithuania to the Netherlands on a weekly basis and was routinely breaking the law by transporting young calves over the maximum permitted time. The AWF team headed out into the field to get proof of this. The transport company was loading young calves at a collecting-station in Zemale, Lithuania and then proceeded to drive towards the final destination of Lettele, The Netherlands. After 21 hours the livestock vehicle with its two drivers had only arrived in the region of Braunschweig, Germany. The calves had not once been provided feed and were on board two hours over the maximum nineteen hours permitted for the transport of unweaned calves still dependent on milk. The team called the German highway police to report this violation. During the police inspection the drivers had the nerve to say that the calves had only been loaded in Marijampolė, insisting they had not been on board too long. The team was able to prove this was a lie through video documentation from the beginning of the journey that in reality took place in Zemale. The distance between Zemale, Lithuania and Lettele, The Netherlands is 1716km and one-third of this is on country-roads. With an average speed of 70km and without any stops, this journey will take 24.5 hours. The estimated journey time the company indicated in the transport documents was thus purposefully incorrect and underestimated. Additionally, the time when the first animal was loaded was indicated being at 17:00 on the transport documents when in reality the first calf was loaded between 11:30 and 13:00.

Other NGO's have also documented young calves being transported over the maximum transport time, or being unloaded to rest at a control post for fewer hours than the mandatory minimum of 24 hours. The most recent known incident of calves not receiving the full 24 hours of rest and still getting the stamp of approval by a control post and veterinarian was in France in August 2014 when AWF trailed a livestock truck with Polish calves destined for Spain. The calves were only unloaded for nine hours at a control post in France and were then re-loaded onto the truck to continue the long journey.

Cheating is rampant because it costs money to use a control post to unload, rest and feed the animals in transit. Additionally the transport company, and thus exporter, also has more transport costs because the truck-drivers have to be paid for the time they wait around at the control post for the animals to get their rest. Some people in the industry also claim that the time spent at a control post is often not good for calves because of the noise, lack of comfort, lack of correct feed and inappropriate drinking system and risk of spread of infection. The long-distance transport of calves seems like a no-win situation.

4.6 Slaughter of calves

In 2012 about 1,4 million veal calves were slaughtered in The Netherlands; 86% of these calves were younger than eight months. Most pale veal calves are slaughtered at an age of six months, whereas the rosé calves will be slaughtered at, on average, eight months of age. In The Netherlands, there are numerous calf slaughterhouses scattered throughout the country, see Table 2. Almost 90% of the veal meat is exported, mainly to Italy, followed up by Germany and France (PVE, 2013).

Table 2. Calf slaughterhouses in The Netherlands and their capacity (PVE, 2013).

<i>Slaughter capacity (animals/year)</i>	<i>Company</i>	<i>Location</i>
>25,000 ¹	KSA	Aalten
	ESA	Apeldoorn
	Vitelco	Den Bosch
>100.000 ²	Ekro	Apeldoorn
	T. Boer en Zn in	Nieuwekerk aan de IJssel
	Vitelco	Den Bosch

¹ Animals of 8-12 months old.

² Animals younger than 8 months of age.

Unfortunately, Eyes on Animals has not been able to visit any of these in time, so no further details on calf slaughterhouses can be provided.

5. Legislation and label criteria

In order to ensure a certain level of welfare on the farm, during transport and at slaughter, the EU and Dutch government have set minimum standards. In this section, European and Dutch legislation will be briefly discussed. This will be followed by an explanation of the different “higher-quality” labels that can be found on dairy products in The Netherlands (Weidemelk, EKO, and Demeter), as well as their criteria with regard to animal-welfare.

5.1 EU and Dutch legislation

The Dutch legislation for the protection of cattle on farms only covers the housing of young calves. There is no specific Dutch national legislation for the protection of *adult* dairy cows on farms. Instead, the EU has set very general rules for the protection of adult dairy cattle, which all Member States, the Netherlands included, are to respect. In a letter that Peter Stevenson from Compassion in World Farming (CIWF) in the UK wrote to each Member State Minister of Agriculture, the EU legislation, its inadequacies and lack of enforcement are very clearly described. We encourage the reader to take a look at Appendix II, 10.6 where the original Compassion in World Farming letter can be found. The original EU legislation for cattle on farm can be found in Appendix II, 10.1.

The Dutch national legislation with regard to the protection of calves on farm is very minimal, accepting individual housing of calves for up to eight weeks of age, providing just enough room for the animal to stand up, turn around and lick itself, and bedding is only required in the first two weeks. There is no minimum time stated for how long a new-born calf should be allowed to stay with its mother, with most calves being taken away right after birth and placed in isolation. To read the Dutch National Legislation for calves, please see Appendix II, 10.2 or for the English translation 10.3.

The transport of cattle (including calves) is regulated by EU legislation, EC 1/2005. Again, the standards set in this legislation do not guarantee good-welfare, but just set minimum rules to protect the animals from serious suffering. Young calves of ten days of age are permitted to be transported for nineteen hours with only water, or water with electrolytes. Cattle can be transported for 29 hours (i.e. two times fourteen hours) with a break of one hour in the middle to be watered. After a break of 24 hours at a control post, the whole event can re-start with animals being loaded back onto the truck for another 29 hours. There are no additional criteria for the transport of pregnant cows, they fall into the same category as the transport of bulls, steers and non-pregnant cows and heifers despite pregnant heifers being more sensitive to transport. Nothing is stated about the importance of pregnant heifers to receive extra rest (for example, longer periods of time that the truck must be stationary in order to allow the pregnant animal to properly ruminate and rest after being fed and watered on board or more frequent unloading periods at control posts), to properly ruminate and avoid miscarriages. In fact, cows and heifers up to 90% of their gestation period (of nine months) are allowed to be transported, even on long distance journeys from the Netherlands to for example Greece, Morocco, Russia, and Turkey. They are, like other cattle, allowed to be on moving trucks for fourteen hours and then only given an obligatory rest of one hour with water and then further transported fourteen hours. These heavily pregnant animals (and their unborn offspring) are particularly sensitive to changes in temperature and humidity, lack of adequate water and feed, and stress from the movement of the vehicle.

Nevertheless, it must be said that the legislation, enforced as of 2007, does explicitly forbid the transport of downer cows, something that was regularly seen before 2007. Downer cows are cows that are too weak to stand up on their own (e.g. caused by milk fever right after calving when their calcium levels drastically drop, or by sickness like mastitis or laminitis or injury). Downer calves would be ones severely dehydrated and thus too weak to stand up, sick or injured causing too much pain to get up and walk.

Unfortunately, however, there are still many grey areas in the EC 1/2005 legislation that are being interpreted differently, particularly with regard to fitness for transport and age of the animals. For example, EC 1/2005 states that “un-weaned” calves are allowed to be transported a maximum of nineteen hours and “weaned” calves 29 hours. Because calves on a commercial farm-setting are weaned at an *unnaturally* young age, many transport companies and exporters claim that these young calves of just a few weeks of age are “weaned” and thus can be transported like adult cattle: for 29 hours! This is an on-going issue that even the EU Commission has not set its foot down on yet. Member States, and even officials among the same Member State, are interpreting this differently, with some forbidding 29 hours transport for young calves, and others allowing it. To read the full transport legislation, please see Annex II, 10.4. Additionally, the EC 1/2007 legislation clearly states that animals must be able to walk unassisted and without pain in order to be considered fit for transport. As seen in this report, culled-cows heading to markets and slaughter houses continue to be regularly transported despite behavioural and physiological signs that they are in pain. The general attitude still is: “if she can walk, she can be loaded”. Thus, downers are fortunately no longer dragged onto trucks, but many cows that are in pain and limping, are still being forced to withstand transport and sale-barns.

Legislation on the protection of animals at slaughter is covered by the EU as well, with all Member States having to act according to it. Like the transport legislation, Member States are allowed to enforce stricter national slaughter rules, but they are not allowed to go under the EU minimums. For example, countries like Poland and Denmark have the additional rule forbidding the slaughter of animals without pre-stunning, whereas the EU legislation allows the slaughter of animals without pre-stunning if it is to satisfy religious requirements.

The most recent version of the EU slaughter legislation dates from 2009. A very good new rule in the 2009 version is the introduction of an Animal Welfare Officer in slaughterhouses. This is someone hired within the slaughterhouse that is to be in charge of the welfare of the animals in the plant. The Animal Welfare Officer should supervise the plants’ equipment and the handling of the animals by employees. This person is responsible that both the equipment and handling are “welfare- friendly”, but also he is expected to stay on top of new welfare developments, and participate in a training course on welfare at the time of killing. This has greatly increased the level of competence and knowledge among slaughterhouse employees and managers with regard to animal-welfare. It has also helped spread ideas to improve welfare, and has put good ideas finally into practice. Aside from this, the EU slaughter legislation forbids certain practices that clearly cause pain and suffering to animals. For example, electric prods are forbidden on young calves, and only to be used on adult cattle that refuse to move and are not hindered. As well, restraint of the head of the bovine is mandatory to reduce the risk of incorrect placement of the captive bolt pistol (an instrument used to stun cattle before slaughter). Floors must be anti-slip to avoid cattle and calves falling down. In

addition, rough handling such as pushing, kicking and tail-twisting are strictly forbidden. To read the full original legislation EC 1099/2009 on the protection of animals at the time of killing, please see Appendix II, 10.5.

5.2 *Label criteria*

The EU and Dutch legislation for animal welfare do have their limits, as they only ensure a certain minimum level of animal welfare that mainly aims to prevent (severe) suffering of animals. Some companies, entrepreneurs, or consumers believe this is not enough. Therefore, labels have been created that set criteria that go beyond the basic minimum levels provided by legislation. In the Netherlands there are three different types of such labels that can be found on cow milk, namely i) the 'Weidemelk' label (representing milk from cows that have access to pasture), ii) the EKO-certificate (representing organic milk), and iii) the Demeter label (indicating milk that has been produced bio-dynamically). More details about these labels will be outlined in this section.

5.2.1 *Weidemelk*

The 'Weidemelk'-label (pasture milk) was founded by Friesland Campina in 2007 to guarantee that a product is made out of 100% milk from cows with access to pasture. Friesland Campina is the biggest milk processing company in The Netherlands and has a big share on the world market for dairy products. In order to keep a good image, the multinational company introduced the Weidemelk-label, as grazing cows in the landscape are indispensable for Dutch consumers and citizens. It is stated that 'due to our market position and social valuation it is of interest to make sure cows can graze in pasture' (Friesland Campina, 2011, p.14). The label has thus been developed in order to ensure the visibility of dairy cows in the Dutch landscape and to stimulate farmers to provide access to pasture. The criteria that must be followed by farmers in order to obtain this label (see Figure 62) is that all dairy cows in lactation should have access to pasture for at least 120 days per year in between spring and autumn for at least six hours per day. The milk is collected and processed separately from other milk. It is turned into, for example, milk, custard, yoghurt and cheese. Over a period from 2012 to 2014 Friesland Campina guaranteed a pasture-milk premium of 50 euro cents per 100 kg milk. However, not all farmers have the opportunity to let their cattle graze for at least 120 days per year, therefore since 2012 dairy farmers can also get a part of the premium when providing pasture access to at least 25% of their dairy cattle for at least 120 days per year for six hours per day. This will result in a milk premium of 12.5 euro cents per 100 kg milk (Friesland Campina, 2011). For 2015 the premium will be increased up to 1 euro per 100 kg milk for those who give 120 days-6 hours per day access to pasture, whereas part-time pasturing will be rewarded with 46 euro cents per 100 kg milk. This increase in premiums will be financed by all dairy farms via a deduction of 0.35 cents per litre of milk. So there will be a nett progress of 0.15 cents per litre of milk if full pasturing is applied. In 2013 Friesland Campina assigned the label to Foundation Pasture-Access ('Stichting Weidegang'). Now all entrepreneurs (i.e. dairy processing companies) that produce dairy products using Dutch pasture milk can use the logo if they have a license from Stichting Weidegang. Companies (i.e. dairy farms) that wish to qualify for the Certificate 'Weidegang' (pasture-access) have to contact Qlip, which is the independent certifying body that ensures that the dairy farms fulfil the criteria of the foundation by conducting audits. If a farmer does not fulfil the criteria a warning will be given including measures that have to be taken. In the end a farmer can also be suspended for three months or even be disqualified for the 'Weidegang' certificate (Stichting Weidegang, 2014). About 70% of the Dutch farmers now produce under the 'Weidemelk' label.



Figure 62. Weidemelk-logo.

5.2.2 EKO

Since July 1st 2012, it is mandatory that the European Bio-certificate (see Figure 63) is placed on all organic products that meet the requirements of the European organic legislation as stated in EC 834/2007. This legislation mainly puts an emphasis on the environment and animal-welfare. Although the key values of organic farming are defined in the international IFOAM Principles of Organic Farming, some of these principles are not taken into account in the law and legislation.



Figure 63. European Bio-certificate logo.

Before the creation of the Bio-certificate, the “EKO-certificate” was used in The Netherlands to indicate whether a product satisfied the requirements of the organic legislation. So after the introduction of the European Bio-certificate, the EKO-certificate had to find a new meaning. Now it indicates extra efforts that have been made by the producers in sustainability beyond the EC 834/2007 legislation, since sustainable production also includes green-energy use, reusable packaging, and fair businesses. It indicates that an entrepreneur is fully dedicated to the principles of organic farming and sustainability in all its aspects. In fact the EKO label (see Figure 64) continues where the law, and the European Bio-certificate, end. The EKO-label can be used by entrepreneurs that are certified by SKAL and that have a licence of Foundation EKO-label (‘Stichting EKO-keurmerk’). SKAL has the governmental task to supervise the organic sector. If an organic entrepreneur violates the rules, he has to correct the aberration as quickly as possible. If the aberration is severe, the certification will be suspended and the products cannot be sold as organic anymore. If more aberrations occur the farmer will be dis-certificated. Every year inspections by SKAL will take place. Currently, there are 344 organic farmers SKAL certified as organic, of which 61 have the EKO-certificate.



Figure 64. EKO-logo

There is a list of criteria an entrepreneur has to satisfy in order to get the EKO-certificate. When it comes to cattle, it is important all female cattle originally are from an organic farm, although there are some exemptions. Cattle have to have the possibility to go outside when weather- and grassland conditions permit it. Stables need to have natural ventilation, enough daylight, even and flat but not slippery floors, 50% closed flooring, sufficient dry and clean lying places with sufficient bedding from natural materials, and at least 6m² per dairy cow. It is allowed to house new-born calves in individual igloos during the nursing period up to eight weeks, although it is not allowed to tie up any animal if it is not needed for their safety during a restricted period. Animal feed has to be GMO free, organically produced, and should not contain any antibiotics, medical substances, or growth promoters. The ration of the cattle cannot contain more than 40% concentrates, and minimal 60% of the animal feed has to be produced on their own farm or in the region. Preferably mother milk is provided to the new-born calves. If this is not possible organic milk powder can be used. The nursing period should take up at least three months. Preferably natural and homeopathic medicine are used for sick animals. Conventional medicine or antibiotics can only be administered by an accountable veterinarian, and preventive use of these substances is not allowed. There is a maximum of three treatments with conventional medicine or antibiotics allowed per animal each year, though animals that go for slaughter under the age of one year can only be treated once. If more treatments are given, the animal and its meat/milk cannot be sold as organic anymore. In addition, it is not allowed to use hormones for regulating growth, fertility, production, or reproduction. Use of hormones is only allowed if the animal is sick and by veterinarian prescription. Calming substances, for example during transport, are not allowed. Artificial insemination is permitted, although other forms of artificial reproduction like embryo transplantation or sexed semen are prohibited. Although dehorning is not allowed an exemption can be made. Most organic farmers apply for this exemption, implying most organic dairy cows are dehorned. If a farmer wants to change to a certified organic business, he can sell his milk as organic only after a conversion period of six months. No specific demands for transport of animals are included in the EKO-label. Also no information on trading of animal via cattle markets is mentioned. Slaughterhouses have to be certified by SKAL in order to slaughter organic meat. For slaughter it is important there is a clear separation in time and/or place for slaughter of conventional and organic animals. Often organic animals are slaughtered at the beginning or at the end of the day after the slaughter line is cleaned (Stichting EKO-keurmerk, 2014).

5.2.3 Demeter

The 'Demeter'-label represents bio-dynamic farmed products. Foundation Demeter ('Stichting Demeter') is the owner of the label for The Netherlands and Flanders, and the independent Demeter License Commission provides the Demeter-certificates based on inspections. All Demeter-enterprises are certified organic, but in order to produce milk under the Demeter-label a farmer has to meet a

list of extra requirements relating to the housing and management of the animals. Bio-dynamic farming stands for supporting the cohesion between soil, plants, animals, humans, and the environment based on the philosophy of Rudolf Steiner. Mixed farming systems are mandatory (individually or in cooperation). Bio-dynamically produced milk ('Zuiver Zuivel' from Demeter) comes from cows that are not dehorned, have access to daylight, and where the calves get fresh milk (although organic milk powder is allowed which is quite expensive). There is a maximum of two cows per hectare, and cow "trainers" (a hanging apparatus in the barn that gives cows an electric shock if they do not urinate or defecate in the runnel in a tied-barn) are not allowed. Only organic straw is used of which cows in deep-litter barns have to get at least 2.5kg each day, and no formalin footbaths or medicine based on genetically-modified organisms or organ phosphorus compounds are allowed. Sufficient ventilation has to be present in order to provide the animals with enough fresh air. At least 80% of the cattle feed has to be produced on farm, and cows have to get at least 3kg of hay every day. Sexed sperm, bulls that are genetically hornless, or extreme meat breeds should not be used for reproduction, and livestock used for breeding and production have to stay at the farm for at least two years. Individual housing of new-born calves is allowed only during the first week of life, where after they have to be housed in groups. Bio-dynamic cattle should have at least 180 days per year access to pasture. Besides the requirements for housing and management of the animals and land, there are also extra demands (that go beyond the organic EKO ones) for the processing and packaging of the produce. For example, milk cannot be homogenized, aluminium is not allowed in packages, and 90% of the ingredients have to be of Demeter-quality. No specific demands for transport of the animals exists. It is possible bio-dynamic calves pass calf markets, as they are often fattened on conventional farms. No rules on cattle markets exists for Demeter. When it comes to slaughter, this is not done on large scale due to the small market so no special slaughterhouses exist. Often it is private butchers that are certified and slaughter some animals for the 'meat packages' of Demeter. In order to show that the milk has been produced according to bio-dynamic standards the Demeter-logo (see Figure 65) is placed next to the standard EU Bio-certificate logo and the EKO-logo. Currently, about 35 Dutch farmers are producing milk according to the Demeter standards (Stichting Demeter, 2014).



Figure 65. Demeter-logo.

6. Alternative ways to produce milk: best practices

After outlining the current standard ways of producing milk, the ethical concerns that arise from this, and the criteria placed on top of national legislation for special labelling of dairy products in the Netherlands, this report will now examine several alternative ways of producing milk. Eyes on Animals visited numerous dairy farms in the Netherlands where special measures are taken to improve the welfare of the dairy cows. This section covers these “best practices”. Eyes on Animals wants to shine some light on the farmers who have taken conscious steps to improve the quality of life of the animals they keep in order to produce milk. We hope to spread knowledge of these best practices and inspire farmers and veterinarians who advise dairy farmers that it is possible to do things differently.

6.1 *De Zonnehoeve*

On 20-06-2014 Eyes on Animals visited the bio-dynamic farm ‘De Zonnehoeve’ in Zeewolde. On this farm there are on average 60 cows housed in a deep-litter barn on straw. The straw together with manure is used as fertilizer in the autumn. At this farm there are three bulls, which are used for reproduction. For the past seven years, this farm has kept the calves with their mothers for 3-4 months after birth. Most of the calves are born in late autumn. At the moment of weaning the calves go in a group to their own pasture located in a nature-reserve area, so weaning occurs abruptly. At this age minimal weaning stress occurs as the young animals are already close to independence from their mother, eat roughage and grass (thus their rumen is developed and they do no longer depend on milk), and they are already naturally getting used to being away from the mother cow for a while. When they are weaned the calves stay all together so they still have their ‘friends’ around’ - other calves that they know and have an established social setting with. After the weaning process is completed, the calves are re-joined with their mothers again while living in the complete herd. The farmers at Zonnehoeve report that on the day of weaning the mother cows are a little bit restless for half a day, but get used to it very soon since this timing is close to the natural weaning age. Genetic selection includes maternal capabilities to make sure the farmer has good mothers that take care of their calves very well. Zonnehoeve reports that during milking time no problems occur between mother and calf; the calf just keeps on waiting for her mother to come back from the milking parlour and the mother cow releases her milk in the milking parlour very well. They do not report difficulties with the handling of the young animals even though they are in the herd most of the time. Zonnehoeve reports that by having the calves suckling their mothers, they have almost no incidences of mastitis. Furthermore, calves over-consuming milk and developing diarrhoea is also not a problem at their farm. Since this farm is Demeter bio-dynamic, the cattle keep their horns and no dehorning takes place (see Figure 66).



Figure 66. Dairy cows with horns...and their calves at Zonnehoeve.

Zonnehoeve found it a shame that their milk gets mixed with the milk from other Demeter dairy farms that do not follow the same high- welfare and environmental principle (their milk was being sold under the Demeter label, owned by Campina). Therefore, they started raising money (via crowd funding) to build their own milk factory so that they could become independent. Their milk factory will be able to process 750 litres per week. Here they will process their milk and the milk of three other progressive farmers that have joined the Zonnehoeve project, for human consumption and into other dairy products, and sell it on their webshop (<http://www.zonnehoeve.net/hofwebwinkel/>).

The cows are culled on average at eight years of age. On average their dairy cows produce about 5000 litres milk per cow per year. The milk production is relatively low due to the fact crossbreds are used (thus not breeds selected for extreme productivity of milk like the Holstein-Frisians) and no corn is fed to the animals. As a result, the cows and calves have fewer health issues and have a longer and higher-quality of life. The culled-cows are sent to a small local slaughterhouse.

6.2 *De Regte Heijden*

On 03-06-2014 Eyes on Animals visited the dairy farm 'De Regte Heijden' owned by the family Van Roessel in Riel. They have 160 dairy cows which are milked twice a day in a parlour. Their cows have the option of going outside all year-round. The family owns several pieces of land, of which one of them is connected to a forest that they can use as well. The cattle are always in the forest at night, and calving often takes place in the forest at night too. In fact, all animals are free. One of their barns has a great new floor- "comfort vloer" - made from soft material underneath and a trampoline tarp cover. This makes it very soft to walk on and anti/slip at the same time. At this farm rubber mats are used on the "cow path" leading to pasture. They report that sometimes the mats do become slippery if they are wet, but they try to keep it dry and clean and are considering buying rubber mats with anti-slip ridges.

On the farm 125 young stock can be found, 50 bull-calves and 75 heifer-calves. Calves are kept with their mothers for 4-5 months long. This all arose as some time ago "they woke up and felt like they were doing everything wrong on the farm" - taking calves away from their mothers, keeping the animals all inside, growing crops with pesticides etc. Since that morning they wanted to do things completely differently. Within a very short amount of time, they changed their way of farming and each year they get more and more involved in "alternative" farming. They also took courses in farming, permaculture, and homeopathic medicine. The calf stays with its mom in a 'family pen'

apart from the herd for the first week, after that time the calves are strong enough to join the cows in pasture. In order to prevent and detect illness in the calves in an early stage the family checks on them twice a day. One problem that occurs is that the calves sometimes damage the teat, and calves often squeeze through the feeding rack and urinate and defecate on the cow's feed, resulting in diarrhoea in the dairy cows. After four months the calf gets nose-flaps to prevent suckling. Often the calves quickly learn how to manipulate them, so soon afterwards the calves are removed from the herd. Due to the fact that cow and calf still have auditory contact, the farmer thinks weaning stress occurs, as both cow and calf keep searching and vocalizing loudly for two days. For over a month they will be housed in group in an open barn, where foster cows are housed. Those foster cows are cows with chronic mastitis, so they are not milked anymore but function very well as foster mothers.

They have created their own label "Regtstreeks Melk" for the milk and yoghurt they make and sell on the farm (Figure 67). On the label it is written "family herd, horns, pasture, herbs, cow – calf, no biocide, free of soya, free of antibiotics, energy neutral, no artificial fertilizers, clover, soil, jersey, calving in spring, fodder trees". They are now considering selling their milk and yoghurt at various farmer's markets, in Tilburg, Eindhoven and even Den Bosch.



Figure 67. Own label "Regtstreeks Melk" for milk and yoghurt of De Regte Heijden.

At their farm milk can be bought for €1 per litre and yoghurt for €1.50, and they charge €1 for the glass as deposit which one gets back when the bottle is returned. The rest of the milk is delivered to Friesland Campina as 'Weidemelk'. On this farm a cow produces on average 25 litres of milk per day, but because the calves are with the mom and drink about 50% of the milk, they only take 12.5 litres of milk per cow per day for human consumption. Here the animals are no longer dehorned (see Figure 68). On this farm crossbreds of Holstein Friesian x Swedish Red Holstein x Jersey are used. They mixed in Jersey, since this breed is very efficient with its feed. Due to the crossbred the cows have smaller udders and less production related diseases.



Figure 68. Cows with horns on pasture at De Regte Heijden farm.

Castration is done by a veterinarian with local anaesthetics and ball-pinchers. When a cow is about to calf or has just had a calf, they are often put in a separate little area to get some rest away from the herd for a few days (see Figure 69).



Figure 69. Calf and cow are separated from the herd to rest...but later both join the herd!

The Van Roessel's face the dilemma at the moment that their calves are worth twice as much as calves from the conventional milk industry, since their calves are raised by their mother and get milk from their mother which makes them healthier, sturdier and larger. However, there is no market that offers extra money for such calves. The Van Roessel's also do not like the idea of sending their calves off, since they are not sure of the fate of their calves and if they will have a good life. Therefore, they are now considering keeping the calves at the farm and fattening them themselves. From this farm the cows are sent to Vion Food Group slaughterhouse in Tilburg, which is 20km away. They are never sent to a livestock market.

6.3 Moerdijk

On 02-06-2014 Eyes on Animals visited the dairy farm of Marc Havermans in Moerdijk together with Evert Niemeijer from Lely. At this farm about 220 cows and 150 young stock are kept. The dairy cows are housed in a compost-barn with four robot-milking machines. Four are sufficient here, as one

robot-milking machine is considered adequate per 60 cows. Since the cows have a lot of space they can easily see whether there is a waiting line for a robot-milking machine or not, making most of them get up to head towards the machine when the time is right. The stress from being moved towards a milking parlour and also from waiting in line to be milked is completely avoided at this farm. The cow is in charge of when she wants to be milked. Also a brush scratcher is available in the barn (see Figure 70). During the visit many cows were seen enjoying getting scratched after being milked.



Figure 70. Cows are getting scratched by the brush in the compost-barn.

In this loose-housing system the floor is made out of compost, which causes ammonia emissions when 'turning' or emptying the compost layers. The cows seem to like the floor since it is soft, and many were found lying on it. We only observed one lame cow, the rest looked fit and did not have any swellings on their hocks or injuries on their spine. This is likely because the floor is so soft and there are no railings as in a cubicle- system. Even though the cows are housed indoors whole year round, they do have 24/7 access to fresh air, day light, and comfortable walking and lying surface.

If the environmental conditions get wet (for example, as in the winter), the farmer will add straw to the compost floor to keep it from getting too soggy. In the summertime the compost is used as fertilizer. Due to strict legislation on ammonia emissions, not many of these type of barns are being built and in fact in his region it is not even allowed anymore. The farmer is frustrated for the reason, which he says is illogical – in The Netherlands the maximum amount of ammonia permitted is measured by multiplying the amount of ammonia found in the ground by the amount of space available to the cows. This means, if you give the cows lots of space (which is welfare-friendly) you are punished for having high ammonia emissions, despite the amount not being any higher in the ground. In France they only measure how much ammonia is in the ground, regardless if you give each cow 2m² or 20m². This would make more sense and allows farmers to give sufficient space to the cows without having to worry about whether this will result in higher ammoniac calculations. Additionally, although the ammonia emissions may be higher on a compost farm compared to other dairy farms, they are better for the environment in other areas (e.g. natural fertilizer, no high pollution caused by far transport of manure), but this is sadly not taken into account in the

Netherlands. Eyes on Animals would like to see that the rules on maximum ammonia be altered in the Netherlands to better take into account the advantages for the welfare of the animals and for the environment on other levels so that other well-managed compost systems, like this one run by Marc Havermans, can be considered as a good alternative to current conventional dairy farms.

About eleven years ago the Holstein Friesian breed was used at this farm. However, there were so many health problems that the farmer almost went bankrupt. Therefore, they changed to crossbreds of much stronger breeds: Montbéliard, Danish Red, and Holstein (see Figure 71).



Figure 71. Crossbreds of Montbéliard, Danish Red, and Holstein.

This new crossbred also has a lower mortality rate at birth among the new-born calves. On this farm crossbred cows have a calf-mortality rate at birth of only 2-3% compared to, according to the farmer, 8-9% on conventional farms. He believes this is due to the stronger genetics, as stronger breeds are being used now. On average a cow on his farm produces 7500 litres of milk each year. This is on average 25 litres of milk for human consumption per day, since every day 6-7 litres of milk is consumed by her calf. About 15% of the dairy cattle is replaced each year (are sent to slaughter and young ones take their place). The average age for cull-cows at this farm is six years, although the farmer is aiming for seven years. Two cows on this farm are even eleven years old. At this farm calves are kept with the mother for about three weeks, although this period is sometimes extended should a calf refuse to take milk from the bottle. The calves are weaned abruptly. The farmer does observe some stress, as he sees both calf and cow searching for each other the first day after weaning. According to him, gradual weaning seems to cause more stress as the animals have to get used to a new situation, and start searching for each other every time. The farmer reports that the advantages he has experienced of keeping mothers with the calves for the first three weeks is the fact that the navel of the calf does not get infected. The mother keeps it clean by regularly licking it and keeping it dry. After weaning the bull-calves are sold to fattening farms, whereas the heifer-calves are kept in a group and housed in a large indoor pen with lots of fresh straw (see Figure 72).



Figure 72. Housing of the heifer-calves after being weaned at minimum three weeks of age.

In the group housing for weaned calves there is a nipple-drinker system from the company “Lely”. This apparatus has rubber nipples so that the calves can still express sucking behaviour while getting their feed intake regulated. Each calf has a collar, hence their intake of milk can be measured. This allows the farmer to also see whether a calf is not drinking well and needs extra attention. Those that refuse the Lely nipple are returned to their mom for a short while. In this barn the calves are housed for about four months. Sometimes the farmer has to apply nose flaps on the adult cows since they still try to suck from their neighbours.

At this farm automatic feeders are used for the adult cattle, which are designed by Lely as well. A robot tractor enters the compost barn and distributes feed automatically in the feeders along one side of the barn. This allows the cows to have 24/7 access to feed. The feeding alley in the new compost-barn consists of only a rubber neck-bar (Figure 73), whereas the older barn still had the conventional metal stanchions (Figure 74). The rubber neck-bar has the advantage of being welfare-friendly as it does not cause rubbing sores on the necks of the cattle as seen in Figure 75 taken on a conventional farm using metal neck-bars.



Figure 73. Flexible and soft, rubber neck-bar along the feeding alley in the new compost barn.



Figure 74. Metal stanchions at the feeding alley of the old barn.



Figure 75. Rubbing sores in the neck of a conventional dairy farm due to neck-bars being set far too low.

When it comes to animal health, the rate of mastitis is low in the well-managed compost-barn system. According to the farmer this is due to the fact that the cows never lie down in the exact same place as another cow, which does occur in cubicle barns. Thus the chance for transmission is much lower on the compost-open- floor system. Since the calves at this farm are strong and healthy due to being raised by their mother the first three weeks and drinking from their mother, less penicillin is now used than before. Sick animals are being separated. In Europe one is not allowed to transport cows within seven days of calving. If a cow develops mastitis after calving and you give her a penicillin treatment you have to wait 30 days before you can transport her to slaughter due to the withdrawal period of the medicine from the flesh. Nevertheless, the chance for a cow with mastitis to get better is very low, so in fact one is prolonging her pain and discomfort because if she is not healed after 30 days, she is now in even worse condition. So it is very important for the welfare of the cows that you keep the rate of mastitis as low as possible or you agree to euthanize a cow with mastitis on your farm, to avoid prolonging her suffering by 30 days in the hope of still earning money from her meat at a slaughterhouse. This farmer sends his cull-cows to the Vion Food Group slaughterhouse in Tilburg. His cattle do not pass through a livestock market.

6.4 De Groote Veen

On 26-08-2014 Eyes on Animals visited the organic dairy farm of Cor den Hartog in Lunteren, who takes care of about 60 cows and 35 young animals. On this farm the cows have cubicles, although the barn has no side-walls and has a netted roof. This means the herd has continual access to fresh air and natural day-light. The deep litter cubicles are filled with sawdust and a straw layer on top. The width of the cubicles appeared larger than on conventional farms, and hardly any bars hamper the animals while getting up and lying down. Since this farmer is an organic farmer, he will put his cows out to pasture as often as the weather permits it. Although 95% of his herd is of the Holstein Friesian breed, he does not put pressure on his cows to have top milk production levels. This is achieved by feeding them less concentrates and a more grass-based diet, but also by genetic selection which is not focused on high milk production but on protein content in the milk. Although Holstein-Friesians are bred for high milk productions, there are also 'subgroups' in this breed. If breeding animals are bred for high protein content in the milk it means they often produce less milk but with a higher protein content. Farmers are paid for fat and protein contents in their milk, which makes some farmers choose cows with high protein contents. In the end, this could also result in less suffering from production related diseases. On this farm a dairy cows produces on average about 20-22 litres of milk each day. This farmer started to keep the calves with the cows a few years ago. Back then his cows produced more milk than his quota allowed him to deliver. As a solution for this 'overproduction' he decided to keep the calves with their mother, so that they could drink some of the milk. Since then, this farmer keeps the female calves with their mothers till 5-6 weeks of age. Bull-calves will be sold two weeks after birth. About 6000 litres per cow per year is produced for human consumption, which is collected by Friesland Campina and sold as organic. Whenever a calf is born, it will stay in the calving pen, a comfortable bedded pen away from the herd (see Figure 76), for about two days with its mother so good bonding occurs. After two days the calf is strong and stable enough to stay on her feet and to move away from the manure slider or other large adult cattle, and therefore it will be placed together with her mother into the herd.



Figure 76. Calving boxes at De Groote Veen where mother and calf stay up to two days after calving.

The heifer-calves will stay for about 5-6 weeks within the herd (see Figure 77). During this period the calf will spend a few hours separated from its mother on the days when the cattle go into pasture.

(The calves are not allowed to join the cows outside in the field due to difficulties collecting them later. All calves stay loose, roaming around the large open cubicle barn). In this part of the day the farmer also has the possibility to give each calf individual attention. For example, he can attend to calves that are not drinking well or that have diarrhoea, and make sure they drink sufficient water with electrolytes.



Figure 77. Calves housed with their mothers in cubicle barn of the dairy herd.

At this farm the farmer does not abruptly wean the heifer-calves from their mother, but applies a gradual weaning system. After the 5-6 weeks of being with the mother cow in the dairy herd, the heifer-calf will be moved over to a side-part of the barn, where it is separated from her mother and the herd by a partial fence. Nevertheless, they can still see, hear and touch each other through the fence and the mother can let the calf suckle via the openings in the fence whenever she wants and whenever the calf calls out to her (Figure 78).



Figure 78. Gradual weaning system where the calves will be housed on the left side and the dairy herd is located on the right side, so the mother cow can still nurse or contact her calf whenever she wants to.

After about one week in this separated area, the calf will be moved over to another part of the barn in which it will be housed on straw (always together with other young calves, never alone)(see Figure 79).



Figure 79. Straw-yard for weaned calves.

Here the heifer-calves are physically separated from their mothers, although they can still have visual and auditory contact (see Figure 80). The farmer reports some weaning-stress; both calf and cow vocalize for about two days at this point. The calves will stay in this barn up to six months, after which they are moved to the open cubicle housing system.



Figure 80. Housing of calves for half a year after being fully weaned on the left side, whereas the dairy cows are housed on the right side, so visual and auditory contact is still possible.

Bull-calves will be sold and leave the farm at an age of fourteen days. Those young male animals will be separated from their moms abruptly, causing stress for the cows as they vocalize repeatedly and search for their calf for about one day after the calf has left. According to this farmer, when it comes to keeping calves with their mothers, it is very important to know what you are doing and to know

how to react in situations. This farmer also said that keeping calves with their mothers is not necessarily better for their welfare, because you need good management for it as well in order to have it succeed. You have to know what to look for when it comes to calf health, but also other issues that might be going on. And when you notice something, it is important you know how to handle, or at least think logically and try to find solutions. Since he switched to keeping calves with their mothers, levels of mastitis did not change. Many farmers are scared of mastitis outbreaks when leaving calves to suckle their mother more than twice a day. This is because they believe the teat opening might not close fully due to constant suckling, and mastitis bacteria could get in. Nevertheless, none of the farmers Eyes on Animals spoke to observed a higher mastitis prevalence. In fact, on some it was reported that mastitis went down. Overall, as observed by farmers and Eyes on Animals inspectors, keeping the calves with the mother has all the potential to be good for their welfare if done correctly, whereas separating them, even if on well-managed farms and done as well as possible, will always bring with it some disadvantages for cow and calf.

On average the cows on this farm are six years old when sent for slaughter. Cull-cows are collected by Vion Food Group and transported for slaughter to Tilburg. His bull-calves and about half of his heifer-calves are sold to a cattle dealer.

6.5 Hazelbroekhoeve

In 2012 Eyes on Animals visited the organic farm 'Hazelbroekhoeve' of Harrie and Karin Janssen in Overloon. Here they have 65 cows and 25 young stock. The dairy herd consists of crossbreeds from Groninger White Headed and MRIJ with sometimes a little bit of Holstein Friesian and Jersey. A dairy cow on this farm produces about 5500 litres of milk per year. This family changed to an organic way of farming because they wanted to leave the farm in better condition than when they got it. From their point of view, organic farming was needed for this. The heifer-calves stay with their mother for three months (Figure 81) . If the soil capacity allows, cows and calves are housed on pasture as much as possible. Last year the herd was 221 days on pasture. The dairy cattle in lactation are housed in a straw-yard barn.



Figure 81. Dairy cows with their calves on pasture at Hazelbroekhoeve.

According to the farmer, the health status of the calves is very high due to the fresh milk that they drink at optimal temperature. This results in the calves having less diarrhoea. The farmer does not observe overconsumption of milk by the calves. First, they over consumed during hot summer days, but now, since extra water is provided this is no longer the case. Fewer uterus problems in the dairy cows occur, which according to the famer are caused by the frequent suckling of the calves. This releases oxytocin, which also makes the uterus contract. Sometimes it happens that the cow is not willing to let go of her milk in the milking parlour, especially a few days after weaning. These cows require some extra attention during milking. Gradual weaning is applied by using nose-flaps for the weaned calves. The nose flap will be placed on the heifer-calves after three months, and will stay on for seven to ten days. After this, the calves will be taken away from their mother. According to the farmer this results in less stress for both cow and calf. The calf can still drink water and eat solid feed although wearing the nose flap.

The bull-calves will leave the farm two weeks after birth. At this age they are also weaned. Some of them are sent to organic farms, but still most of them end up at conventional veal calf farms. For three years, no antibiotics have been used as they apply etheric oils when there are problems like mastitis. The average age of cull-cows on this farm is six years and eight months, When the cull-cows leave the farm they will go directly to the slaughterhouse without passing any market first.

6.6 *Schoonderbeek*

In 2011 Eyes on Animals visited bio-dynamic dairy farm 'Schoonderbeek' of Gerard Kok in Achterveld. On this farm 45 Holstein Friesian x Fries Hollands crossbred dairy cows are kept. In the future the farmer would like to expand to a dairy herd of 65 cows. This crossbreed is used since the farmer leaves the horns on the cows, resulting in less aggressive and more steady and robust animals (see Figure 82). The dairy cows are housed in a straw-yard barn.



Figure 82. Crossbred dairy cow with horns in the straw-yard barn of Schoonderbeek.

A heifer has her first calf at 2 ½ years of age. She is bred using natural fertilization from a bull. However, in the case that inbreeding could occur, artificial insemination is used. Calves are kept with their mother, although bull-calves leave the farm at the age of two weeks after which they will go to an organic veal farm where they will be fattened for slaughter. The heifer-calves stay with their mother in the herd for 2 ½ months (see Figure 83).



Figure 83. Calf with its mother at Schoonderbeek.

Sometimes it happens the cow is not willing to let go of her milk in the milking parlour, as she wants to save it for her calf. On this farm cows and calves have the ability to express their natural behaviours to the fullest. A cow on this farm produces on average 15-20 litres of milk for human consumption per day. Right after weaning the production increases to on average 25-30 litres of milk for human consumption, which will then slowly decrease. The milk is produced for 'Zuiver Zuivel' from Demeter. After ten weeks the calves will be weaned gradually, as they will move over to another barn where they are separated from their mother by a fence (see Figure 84). The mother can still come up to her, lick her and let her suckle milk. The fence can be adjusted to moments where the calf is not allowed to drink milk but where she still can have contact with her mother. This weaning process will take about one month.



Figure 84. Fence used for gradual weaning at Schoonderbeek where calf can still suckle the mother if she comes up to the fence.

The farmer is very confident about the strong bond between the mother cow and her calf, and although separation of the two is painful and stressful, this farmer is convinced that the positive effects outbalance the negative effects. Cows on this farm have about 3-4 calves, and leave the farm at an average age of six years old. Cull-cows are sent to Vion Food Group in Tilburg.

7. Recommendations

In a nut shell, Eyes on Animals would like to see a new label for dairy products. This new label should focus on high-welfare standards for the cows and calves behind the product and the supermarkets should encourage farmers to switch to it so consumers have easy access. A label for the dairy products made from milk from farms run like those we showed in our Best Practice chapter- where the animals clearly are doing well and their natural behaviour and physiology are being respected. These farmers deserve to be rewarded and consumers deserve to have the chance to buy a high-welfare option.

Currently, there are several quality labels in the Netherlands and they are a step in a better direction, but all of them allow the separation of the calf from the mother right after birth which we feel is a serious limiting factor to the well-being of the calves and the cows.

And in addition, many include strict environmental standards and rigid management styles that some farms with terrific welfare levels cannot realistically attain. Thus the focus is on the environment with welfare being second; if a farm is very good for the welfare of its animals but does not yet have 100% organic soil or is not 100% antibiotic free, it is not allowed in the quality-label system and their milk gets mixed instead with milk from conventional sources. This is a shame. The environment is important but animal welfare should be equally so.

Alternatively, instead of a brand new label, it could also be possible that the current labels reconsider their criteria. For example, that Demeter softens its rules on biodynamic management slightly and makes it mandatory to keep the calves with the mothers; or that Weidemelk adds criteria and offers extra financial bonuses when calves are kept with the mother, cubicles are long and have deep bedding and do not hinder natural head-swinging movements etc.

Additionally, the quality-system “Beter Leven”, found on eggs and certain types of meat, could be extended to the dairy sector. Imagine a Beter Leven system for milk, with 3-star milk, cheese and ice-cream coming from dairy farms where calves are kept with their mothers and raised in a herd, there are no bodily mutilations, crossbreeds are used to prevent depletion of the body for high-milk yields, free-pasture access to the cows or open-concept barns providing lots of space, animal friendly passages, fresh air and sunlight. For those farms not yet ready to make so many adaptations, they can strive for two stars. But at least the consumer knows what they are supporting.

This above is the ultimate aim of our report. In the meanwhile we would like to stress the urgent need for the following:

- ➔ **Education:** This project has made it obvious to us that there is an urgent need for more education in animal behaviour and signs of pain for all NVWA and private veterinarians working in the dairy sector (farms, markets, export centres, control posts and slaughterhouses). Such workshops are offered by companies as VetVice in Bergharen (<http://www.vetvice.nl>). We would like to encourage the NVWA to have cow-experts from Vetvice be hired to give a workshop to all their staff in charge of inspecting cattle. Equally, companies like Vion slaughterhouse in Tilburg and Leeuwarden Cattle Market could also have

experts from VetVice come to give a workshop to their board and staff. The more education the better to get everyone on a higher, level playing field.

- ➔ **Better communication:** Dairy farmers in the Netherlands all have a private veterinarian. Why then are so many cows showing signs of not being well? It is vital that veterinarians also learn to recognize signs of pain and behavioural indicators showing incorrect design of equipment in order to give good advice to the farmer. The veterinarians must develop the knowledge and then courage to give suggestions on such things as rubber flooring, adjusting the height and position of bars in the cubicles and feed racks, length of cubicle flooring, importance of deep bedding material, quality of feed, cleanliness, and a stress-free and clean calving area. We encourage private dairy farm veterinarians to also follow courses by such companies as Vetvice. Farmers can also have veterinarians from Vetvice come directly to their farm to take a look at where they can improve on, or identify the causal factor for problems seen in their cattle.
- ➔ **Stop the vicious circle:** Livestock markets must make it clear to cattle traders and farmers that cattle that are not walking or feeling well will under no circumstance ever be accepted. These animals should either be euthanized on the farm, or at the very least be sent directly to a slaughterhouse if their symptoms are not yet too serious, but not pass through a market first. In addition, slaughterhouses must systematically stop accepting cattle that are seriously lame or showing signs of pain. Only then will the causal-factors of these problems be resolved on the farm. As long as the farmer and trader have a place to get rid of the culled-cows in poor shape, there will be little time and money invested into improving the design of the barn. A farmer will not invest in making his cubicle floors longer if all of his lame cows still get to go to market! We do not want to put a band-aid on the problem, we want to stop the problem from developing in the first place.
- ➔ **Banks:** Dutch banks must stop putting the focus on fast high production and instead on long-term high welfare and steady production into their criteria for farmers wanting a loan. Bonuses should be given out for animal welfare. A cow is at her highest and most efficient in production between the ages of seven and eight years. It is not smart investment for banks to give loans to dairy farms where the focus is on sucking the cows for as much as they can and then sending them to slaughter at only 5-6 years of age because they are in poor shape so quickly. These farms may have a higher production of milk per cow per day, but it is a waste of resources and bad for the environment to only keep cows for only two lactations. The first two years the heifers are not yet producing milk (thus only consuming space and resources and producing manure) and having to cull so early means the cow has not yet been able to attain her peak production years where she is most efficient. Farms that have good management, healthy genetics and comfortable barns can raise their average age in order to be more efficient. This is better in the long-term for the economy, the environment and the welfare of the animals.

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9. Appendix I: Overview to score pain in cattle (Dutch)

Pijnscorekaart




	SCORE 1	SCORE 2	SCORE 3
UIER	Subklinisch – mild <ul style="list-style-type: none"> • Verhoogde geleidbaarheid – celgetal • Vlokjes in de melk? • Gevoelig en/of afwijkend kwartier • Koe is minder actief • Koorts? 	Mastitis met hard kwartier <ul style="list-style-type: none"> • Vergroot en pijnlijk kwartier • Koe is veel minder actief • Minder pensvulling/voeropname • Oren hangen af • Koorts (> 39.0 °C) 	<ul style="list-style-type: none"> • Ernstig zieke koe met mastitis • Hard, pijnlijk afwijkend kwartier • Diepliggende ogen • Tandenknaars en/of kreunen • Koude (afhangende) oren, koude poten (extremiteten) • Koorts (> 39.5 °C)
KLAUWEN	Afwijkende gang – licht kreupel <ul style="list-style-type: none"> • Koe zet poot scheef weg • Trippelen, poot steeds optillen • Minder pensvulling/voeropname • Koe is minder actief • Koorts? 	Kreupele koe <ul style="list-style-type: none"> • Poot ontlasten bij staan en lopen • Ongelijke stappen en bewegen • Kromme rug • Moeilijk liggen en staan • Slechte pensvulling 	<ul style="list-style-type: none"> • Ernstig kreupel koe • Koe staat op 3 poten • Opgezet warm gewricht • Slechte pensvulling/sterk vermagerd • Tandenknaars en/of kreunen • Koorts (> 39.0 °C)
ALGEMEEN	<ul style="list-style-type: none"> • Zichtbare beschadigingen op de huid • Minder makkelijk liggen, staan en bewegen • Koe is minder actief • Minder pensvulling/voeropname • Afwijkende mest • Oren hangen af • Haren overeind • Vieze neus/neusuitvloe 	<ul style="list-style-type: none"> • Schouderbladen uit elkaar • Dubbele flankslag/pompen • Dof haarkleed • Kromme rug, opgetrokken buik, kop laag • Oren hangen af en zijn koud • Diepliggende ogen • Tandenknaars en/of kreunen • Slechte pensvulling 	<ul style="list-style-type: none"> • Slechte pensvulling/sterk vermagerd • Diepliggende ogen/in zichzelf gekeerde blik • Tandenknaars en/of kreunen • Onwil te gaan staan, duikhouding, bek open • Koude (afhangende) oren, koude poten (extremiteten)

AKTIE *


<ul style="list-style-type: none"> • Temperatuur opnemen • Specifieke actie: melkmonster nemen, poot controleren/klauw bekappen, magneet ingeven • Eventueel pijnstilling/ontstekingsremming geven 	<ul style="list-style-type: none"> • Temperatuur opnemen • Specifieke actie: melkmonster nemen, poot controleren/klauw bekappen, magneet ingeven • Zeker pijnstilling/ontstekingsremming geven • Eventueel naar ziekenstal voor speciale aandacht 	<ul style="list-style-type: none"> • Naar ziekenstal voor speciale aandacht • Intensieve behandeling met vloeistof-therapie (infusen, drenchen door dierenarts) • Eventueel overweging euthanasie
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* Indien behandeling met antibiotica of andere diergeneesmiddelen nodig is, volg dan de instructies op uw bedrijfsbehandelplan (BBP) en overleg met uw dierenarts

Deze Scorekaart is samengesteld door praktijknetwerk 'De PijnPoli', onder begeleiding van UGCN.



UGCN
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Europees Landbouwfonds
voor Plattelandsontwikkeling:
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10. Appendix II: Legislation

10.1 Council Directive 95/58/EC Protection of animals kept for farming purposes

COUNCIL DIRECTIVE 95/58/EC of 20 July 1998 concerning the protection of animals kept for farming purposes

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 43 thereof,

Having regard to the proposal from the Commission (1),

Having regard to the opinion of the European Parliament (2),

Having regard to the opinion of the Economic and Social Committee (3),

Whereas all Member States have ratified the European Convention for the Protection of Animals Kept for Farming Purposes (hereinafter called 'the Convention'); whereas the Community has also approved this Convention by Decision 78/923/EEC (4) and has deposited its instrument of approval; Whereas the Community, as a contracting party, must give effect to the Principles laid down in the Convention;

Whereas those principles include the provision of housing, food, water and care appropriate to the physiological and ethological needs of the animals, in accordance with established experience and scientific knowledge;

Whereas it is also necessary for the Community to make further provision for the uniform application of the Convention and its recommendations and for specific rules concerning the application of this Directive;

Whereas the European Parliament, in its resolution of 20 February 1987 on animal welfare policy (5) called on the Commission to make proposals for Community rules covering general aspects of the rearing of livestock;

Whereas Declaration No 24 annexed to the Final Act of the Treaty on European Union calls on the European institutions and the Member States, when drafting and implementing Community legislation, in particular on the common agricultural policy, to pay full regard to the welfare requirements of animals;

Whereas differences which may distort conditions of competition interfere with the smooth running of the organisation of the market in animals;

Whereas there is therefore a need to establish common minimum standards for the protection of animals kept for farming purposes in order to ensure rational development of production and to facilitate the organisation of the market in animals; whereas to that end it is appropriate to take account of animal welfare provisions already laid down in Community rules;

Whereas a comparative examination of animal welfare provisions applicable in the Community and in certain non-member countries together with an appraisal thereof should be undertaken with a view to determining the nature of future Community initiatives aimed at eliminating distortions of competition,

HAS ADOPTED THIS DIRECTIVE:

Article 1

1. This Directive lays down minimum standards for the protection of animals bred or kept for farming purposes.

2. It shall not apply to:

- (a) animals living in the wild;
- (b) animals intended for use in competitions, shows, cultural or sporting events or activities;
- (c) experimental or laboratory animals;
- (d) any invertebrate animal.

3. This Directive shall apply without prejudice to specific Community Rules laid down elsewhere, and in particular to Directives 88/166/EEC (1), 91/629/EEC (2) and 91/630/EEC (3), which shall continue to apply.

Article 2

For the purposes of this Directive the following definitions shall apply:

- 1. 'animal': any animal (including fish, reptiles or amphibians) bred or kept for the production of food, wool, skin or fur or for other farming purposes;
- 2. 'owner' or 'keeper': any natural or legal person or persons responsible for or in charge of animals whether on a permanent or temporary basis;
- 3. 'competent authority': the competent authority within the meaning of Article 2(6) of Council Directive 90/425/EEC of 26 June 1990 concerning veterinary and zoo technical checks applicable in intra-Community trade in certain live animals and products with a view to the completion of the internal market (4).

Article 3

Member States shall make provision to ensure that the owners or keepers take all reasonable steps to ensure the welfare of animals under their care and to ensure that those animals are not caused any unnecessary pain, suffering or injury.

Article 4

Member States shall ensure that the conditions under which animals (other than fish, reptiles or amphibians) are bred or kept, having regard to their species and to their degree of development, adaptation and domestication, and to their physiological and ethological needs in accordance with established experience and scientific knowledge, comply with the provisions set out in the Annex.

Article 5

1. The Commission shall submit to the Council any proposals which may be necessary for the uniform application of the European Convention for the Protection of Animals kept for Farming Purposes and,

on the basis of a scientific evaluation, any recommendations made under this Convention and any other appropriate specific rules.

2. In addition, every five years and for the first time five years after the date of entry into force of this Directive, the Commission, on the basis of experience acquired since the implementation of this Directive, in particular concerning the measures referred to in paragraph 1 and technical and scientific developments, shall submit to the Council a report, accompanied by any appropriate proposals taking into account the report's conclusions.

3. The Council shall act by qualified majority on these proposals.

Article 6

1. Member States shall ensure that inspections are carried out by the competent authority to check compliance with the provisions of this Directive. Such inspections may be carried out at the same time as checks for other purposes.

2. From a date to be determined in accordance with the procedure laid down in paragraph 3, Member States shall submit to the Commission reports on the inspections required under paragraph

1. The Commission shall submit summaries of those reports to the Standing Veterinary Committee.

3. The Commission shall before 1 July 1999, in accordance with the procedure laid down in Article 9 submit proposals with a view to harmonising:

(a) the inspections required under paragraph 1;

(b) the format, content and frequency of submission of the reports referred to in paragraph 2.

Article 7

1. Whenever uniform application of the requirements of this Directive renders it necessary, veterinary experts from the Commission may, in conjunction with the competent authorities;

(a) verify that the Member States are complying with the said requirements;

(b) make on-the-spot checks to ensure that the checks are carried out in accordance with this Directive.

2. A Member State in whose territory an inspection is made shall provide the veterinary experts from the Commission with any assistance they may require in the performance of their tasks. The outcome of the checks made must be discussed with the competent authority of the Member State concerned before a final report is drawn up and circulated.

3. The competent authority of the Member State concerned shall take any measures which may be necessary to take account of the results of the check.

4. Detailed rules for the application of this Article shall be adopted, where necessary, in accordance with the procedure laid down in Article 9.

Article 8

1. Before 30 June 1999 the Commission shall submit to the Council a report on:

— the comparison between animal welfare provisions in the Community and in non-member countries which supply the Community,

— the scope for obtaining wider international acceptance of the welfare principles laid down in this Directive, and

— the extent to which Community objectives in relation to animal welfare may be liable to be undermined as a result of competition from non-member countries which do not apply equivalent standards.

2. The report referred to in paragraph 1 shall be accompanied by any necessary proposals with the aim of eliminating distortions of competition.

Article 9

1. The Commission shall be assisted by the Standing Committee on the Food Chain and Animal Health set up pursuant to Article 58 of Regulation (EC) No 178/2002 (1).

2. Where reference is made to this Article, Articles 5 and 7 of Decision 1999/468/EC (2) shall apply. The period laid down in Article 5(6) of Decision 1999/468/EC shall be set at three months.

3. The Committee shall adopt its Rules of Procedure.

Article 10

1. Member States shall bring into force the laws, regulations and Administrative provisions, including any sanctions, necessary to comply with this Directive not later than 31 December 1999, subject to any different decision taken by the Council in the light of the report referred to in Article 8. They shall forthwith inform the Commission thereof. When Member States adopt these measures, they shall contain a reference to this Directive or shall be accompanied by such reference on the occasion of their official publication. The methods of making such reference shall be laid down by Member States.

2. However, after 31 December 1999, Member States may, in compliance with the general rules of the Treaty, maintain or apply within their territories stricter provisions for the protection of animals kept for farming purposes than those laid down in this Directive. They shall inform the Commission of any such measures.

3. Member States shall communicate to the Commission the texts of the main provisions of national law which they adopt in the field governed by this Directive.

Article 11

This Directive shall enter into force on the day of its publication in the Official Journal of the European Communities.

Article 12

This Directive is addressed to the Member States.

ANNEX

Staffing

1. Animals shall be cared for by a sufficient number of staff who possess the appropriate ability, knowledge and professional competence.

Inspection

2. All animals kept in husbandry systems in which their welfare depends on frequent human attention shall be inspected at least once a day. Animals in other systems shall be inspected at intervals sufficient to avoid any suffering.

3. Adequate lighting (fixed or portable) shall be available to enable the animals to be thoroughly inspected at any time.

4. Any animal which appears to be ill or injured must be cared for appropriately without delay and, where an animal does not respond to such care, veterinary advice must be obtained as soon as

possible. Where necessary sick or injured animals shall be isolated in suitable accommodation with, where appropriate, dry comfortable bedding.

Record keeping

5. The owner or keeper of the animals shall maintain a record of any medicinal treatment given and of the number of mortalities found to each inspection. Where equivalent information is required to be kept for other purposes, this shall also suffice for the purposes of this Directive.

6. These records shall be retained for a period of at least three years and shall be made available to the competent authority when carrying out an inspection or when otherwise requested.

Freedom of movement

7. The freedom of movement of an animal, having regard to its species and in accordance with established experience and scientific knowledge, must not be restricted in such a way as to cause it unnecessary suffering or injury. Where an animal is continuously or regularly tethered or confined, it must be given the space appropriate to its physiological and ethological needs in accordance with established experience and scientific knowledge.

Buildings and accommodation

8. Materials to be used for the construction of accommodation, and in particular for the construction of pens and equipment with which the animals may come into contact, must not be harmful to the animals and must be capable of being thoroughly cleaned and disinfected.

9. Accommodation and fittings for securing animals shall be constructed and maintained so that there are no sharp edges or protrusions likely to cause injury to the animals.

10. Air circulation, dust levels, temperature, relative air humidity and gas concentrations must be kept within limits which are not harmful to the animals.

11. Animals kept in buildings must not be kept either in permanent darkness or without an appropriate period of rest from artificial lighting. Where the natural light available is insufficient to meet the physiological and ethological needs of the animals, appropriate artificial lighting must be provided.

Animals not kept in buildings

12. Animals not kept in buildings shall where necessary and possible be given protection from adverse weather conditions, predators and risks to their health.

Automatic or mechanical equipment

13. All automated or mechanical equipment essential for the health and wellbeing of the animals must be inspected at least once daily. Where defects are discovered, these must be rectified immediately, or if this is impossible, appropriate steps must be taken to safeguard the health and well-being of the animals. Where the health and well-being of the animals is dependent on an artificial ventilation system, provision must be made for an appropriate backup system to guarantee sufficient air renewal to preserve the health and wellbeing of the animals in the event of failure of the system, and an alarm system must be provided to give warning of breakdown. The alarm system must be tested regularly.

Feed, water and other substances

14. Animals must be fed a wholesome diet which is appropriate to their age and species and which is fed to them in sufficient quantity to maintain them in good health and satisfy their nutritional needs. No animal shall be provided with food or liquid in a manner, nor shall such food or liquid contain any substance, which may cause unnecessary suffering or injury.

15. All animals must have access to feed at intervals appropriate to their physiological needs.

16. All animals must have access to a suitable water supply or be able to satisfy their fluid intake needs by other means.

17. Feeding and watering equipment must be designed, constructed and placed so that contamination of food and water and the harmful effects of competition between the animals are minimised.

18. No other substance, with the exception of those given for therapeutic, or prophylactic purposes or for the purposes of zoo technical treatment as defined in Article 1(2)(c) of Directive 96/22/EEC (1), must be administered to an animal unless it has been demonstrated by scientific studies of animal welfare or established experience that the effect of that substance is not detrimental to the health or welfare of the animal.

Mutilations

19. Pending the adoption of specific provisions concerning mutilations in accordance with the procedure laid down in Article 5, and without prejudice to Directive 91/630/EEC, relevant national provisions shall apply in accordance with the general rules of the Treaty.

Breeding procedures

20. Natural or artificial breeding or breeding procedures which cause or are likely to cause suffering or injury to any of the animals concerned must not be practised. This provision shall not preclude the use of certain procedures likely to cause minimal or momentary suffering or injury, or which might necessitate interventions which would not cause lasting injury, where these are allowed by national provisions.

21. No animal shall be kept for farming purposes unless it can reasonably be expected, on the basis of its genotype or phenotype, that it can be kept without detrimental effect on its health or welfare.

10.2 Dutch Act for Keepers of Animals ('Besluit houders van dieren') Chapter 2 Keeping of farm animals ('Houden van dieren voor landbouwdoeleinden') paragraph 5 (cattle) & paragraph 5.1 (calves)

Besluit houders van dieren

§ 5. Houden van runderen voor productie

Artikel 2.28. Verrichten van ingrepen door de houder

Als handelingen als bedoeld in artikel 2.9, derde lid, van de wet worden aangewezen het door houder van het rund:

- a. verrichten van de ingreep, bedoeld in artikel 2.1, onderdeel d, van het Besluit diergeneeskundigen, bij runderen, mits het dier jonger is dan vier weken;
- b. verrichten van de ingreep, bedoeld in artikel 2.4, onderdeel a, van het Besluit diergeneeskundigen, mits de ingreep geschiedt op aanwijzing van een plaatselijk praktiserende

dierenarts nadat deze een plaatselijke verdoving ten behoeve van deze ingreep heeft toegepast en voor zover deze handeling wordt verricht bij runderen jonger dan twee maanden met behulp van een elektrische of heteluchtmethode dan wel bij runderen ouder dan zes maanden door middel van een draadzaag;

- c. verrichten van ingrepen als bedoeld in de artikelen 2.4, onderdeel b, en 2.6, onderdelen b en c, van het Besluit diergeneeskundigen;
- d. het intraveneus toedienen aan een rund van een vloeistof die als werkzame bestanddelen uitsluitend calcium en magnesium bevat in een hoeveelheid van ten hoogste 450 ml;
- e. openleggen van zoolzweren bij runderen.

§ 5.1. Houden van kalveren voor productie

Artikel 2.29. Begripsbepalingen

In deze paragraaf wordt verstaan onder:

eenlingbox: ruimte met ten minste drie wanden bestemd voor het huisvesten van één kalf;

kalf: rund behorend tot de soort *Bos primigenius taurus*, van ten hoogste zes maanden;

stal: ruimte bestemd voor het, al dan niet in eenlingboxen, houden van één of meer kalveren;

vleeskalf: kalf dat kennelijk wordt opgefokt tot een rund bestemd om met het oog op de vleesproductie te worden geslacht op een leeftijd van ten hoogste acht maanden;

vleesstierkalf: kalf van het mannelijk geslacht dat wordt opgefokt tot een rund bestemd om met het oog op de vleesproductie te worden geslacht op een leeftijd van ten minste acht maanden.

Artikel 2.30. Toepassingsbereik

De artikelen 2.32 en 2.33 zijn niet van toepassing op een kalf dat door de moeder wordt gezoogd.

Artikel 2.31. Aanbinden en muilkorven

1. Een kalf wordt niet aangebonden gehouden.
2. In afwijking van het eerste lid is het toegestaan om kalveren in groepshokken aan te binden tijdens het voeren van melk of een melkvervangend preparaat voor ten hoogste één uur.
3. Het aanbinden, bedoeld in het tweede lid, vindt plaats met een verbindingsmiddel dat zodanig is ontworpen dat er geen wurging of verwonding bij het kalf optreedt en het kalf zonder problemen kan liggen, rusten, opstaan en zich zonder problemen kan likken.
4. Een verbindingsmiddel als bedoeld in het derde lid wordt regelmatig geïnspecteerd en eventueel bijgesteld om te zorgen dat het gemakkelijk zit.
5. Een kalf wordt niet gemuilkorfd.

Artikel 2.32. Huisvesting

1. Een kalf ouder dan 8 weken wordt niet in een eenlingbox gehuisvest.
2. Het eerste lid is niet van toepassing indien een dierenarts heeft bepaald dat een kalf in verband met zijn gezondheid of gedrag moet worden geïsoleerd om te worden behandeld.
3. Indien een kalf anders dan in eenlingboxen wordt gehouden, heeft een kalf met een levend gewicht van:
 - a. minder dan 150 kg, de beschikking over ten minste 1,5 m² vloeroppervlakte;
 - b. 150 kg tot 220 kg, de beschikking over ten minste 1,7 m² vloeroppervlakte;
 - c. 220 kg of meer, de beschikking over ten minste 1,8 m² vloeroppervlakte.

Artikel 2.33. Eenlingboxen

1. Indien een kalf in een eenlingbox wordt gehouden, heeft die eenlingbox een breedte van ten minste de schofthoogte van het kalf, gemeten terwijl het kalf rechtop staat, en een lengte van ten minste 1,1 maal de lichaamslengte van het kalf, gemeten van de neuspunt tot aan de achterkant van de zitbeenknobbel (tuber ischii).
2. Met uitzondering van een eenlingbox die voor het isoleren van zieke dieren wordt gebruikt, zijn de wanden van een eenlingbox zodanig uitgevoerd dat naast elkaar gehouden kalveren elkaar kunnen zien en aanraken.

Artikel 2.34. Inrichting stal

1. De stal is zodanig ingericht dat een kalf zonder problemen kan liggen, rusten, opstaan en zich zonder problemen kan likken.
2. Indien kalveren in een stal met ligboxen worden gehouden, is het aantal ligboxen ten minste gelijk aan het aantal kalveren.

Artikel 2.35. Vloer

1. De vloer van een stal is stroef en aangepast aan het gewicht en de grootte van de kalveren en vormt een stevige, vlakke en stabiele oppervlakte.
2. Bij ministeriële regeling kunnen regels worden gesteld over de eigenschappen van de vloer.

Artikel 2.36. Ligruimte

1. De ligruimte van een stal is comfortabel en zindelijk, beschikt over een behoorlijke afvoer en is niet schadelijk voor de kalveren.
2. De vloer van de stal van kalveren jonger dan twee weken is ingestrooid met adequaat strooisel.
3. Kalveren met uitzondering van vleesstierkalveren ouder dan twee maanden beschikken over ligruimte die is ingestrooid of is voorzien van een kunststof mat, houten lattenrooster of rubber toplaag.
4. De oppervlakte van de ligruimte bedraagt in stallen waarin de kalveren niet zijn aangebonden of niet in eenlingboxen zijn gehuisvest, voor kalveren tot een leeftijd van drie maanden ten minste 0,50 m² beschikbare ruimte per kalf en voor kalveren ouder dan drie maanden ten minste 0,70 m² beschikbare ruimte per kalf.

Artikel 2.37. Verlichting

1. Kalveren beschikken over passend dag- of kunstlicht.
2. Van passend dag- of kunstlicht is in ieder geval sprake indien de oppervlakte van lichtdoorlatend materiaal in wand of dak van een stal bestemd voor vleeskalveren ten minste 2% van de vloeroppervlakte van de stal bedraagt en van een stal bestemd voor andere kalveren dan vleeskalveren ten minste 5% bedraagt van die oppervlakte, waarbij het materiaal zodanig is aangebracht dat het licht in de stal gelijkmatig is gespreid.

Artikel 2.38. Voedersysteem

1. Indien kalveren in groepshokken worden gehouden en niet ad libitum of via een automatisch voedersysteem worden gevoederd, is de breedte van het voerhek zodanig dat alle kalveren tegelijk kunnen eten.
2. De breedte van het voerhek bedraagt ten minste 0,40 m per kalf.

3. In stallen voorzien van een systeem van voorraadvoeding beschikken kalveren over ten minste één eetplaats per drie kalveren.

Artikel 2.39. Voeder- en drinkinstallaties

De installaties die voor het voederen en drenken worden gebruikt, zijn op zodanige wijze ontworpen, gebouwd en geplaatst en worden op zodanige wijze onderhouden, dat gevaar voor verontreiniging van het voor de kalveren bestemde voer en water wordt beperkt.

Artikel 2.40. Apparatuur

Maatregelen als bedoeld in artikel 2.5, negende lid, bestaan in ieder geval uit het toepassen van andere voedermethoden en het handhaven van een acceptabel leefklimaat.

Artikel 2.41. Voederen

1. Kalveren worden ten minste tweemaal per dag gevoederd.
2. Onverminderd de artikelen 1.7, onderdeel e, en 2.4, zesde lid, beschikken kalveren over voer dat beantwoordt aan de met hun gedrag samenhangende behoeften.
3. De voeding bevat voldoende ijzer om een gemiddeld hemoglobinegehalte van ten minste 4.5 mmol/l te bereiken.
4. Aan kalveren ouder dan twee weken wordt dagelijks een hoeveelheid vezelhoudend voer verstrekt, welke hoeveelheid voor kalveren van 8 tot 20 weken oud wordt verhoogd van 50 gram tot 250 gram per dag.

Artikel 2.42. Drenken

1. In afwijking van artikel 1.7, onderdeel f, kunnen aan een kalf ouder dan twee weken ook andere vloeistoffen dan water worden verstrekt om in zijn behoefte aan drinken te voorzien.
2. Bij warm weer en voor zieke kalveren is permanent vers drinkwater beschikbaar.
3. Kalveren krijgen zo spoedig mogelijk, maar in elk geval binnen zes uur na hun geboorte, koebiest te drinken.

Artikel 2.43. Inspectie

In afwijking van artikel 2.4, tweede lid, worden op stal gehouden kalveren ten minste tweemaal per dag en in de open lucht gehouden kalveren ten minste eenmaal per dag geïnspecteerd.

Artikel 2.44. Reiniging en ontsmetting

1. De stal, eenlingboxen, uitrusting en gereedschap voor kalveren worden op passende wijze gereinigd en ontsmet teneinde kruiscontaminatie en ziekteverwekkers te voorkomen.
2. Uitwerpselen, urine en niet opgegeten of gemorst voer worden zo vaak mogelijk verwijderd, zodat de reuk zoveel mogelijk wordt beperkt en geen vliegen en knaagdieren worden aangetrokken.

Artikel 2.45. Zieke en gewonde dieren

Het afzonderen, bedoeld in artikel 2.4, vierde lid, vindt plaats in een adequate ruimte die is voorzien van droog en comfortabel strooisel en die plaats biedt aan ten minste 1% van het aantal gehouden kalveren en indien dit minder is dan één, aan ten minste één kalf.

Artikel 2.46. Invoer vanuit derde land

De invoer van kalveren die vanuit een derde land via Nederland voor het eerst op het grondgebied van de Europese Unie worden gebracht, is slechts toegestaan indien de kalveren vergezeld gaan van een geldig, door de bevoegde autoriteit van dat derde land afgegeven, volledig ingevuld en gedagtekend certificaat als bedoeld in artikel 8 van richtlijn 2008/119/EG van de Raad van 18 december 2008 tot vaststelling van minimumnormen ter bescherming van kalveren (Gecodificeerde versie; PbEU 2008, L 10).

10.3 *English Translation of Dutch Act for Keepers of Animals*

The Dutch legislation for the protection of cattle on- farm largely only covers the housing of calves. There is no specific Dutch national legislation for adult dairy cows, the basic EU animal-welfare laws for on the farm covered in the previous chapter apply to them. In section 10.2 the Dutch Act in its original language can be found. Below is an English translation of the Dutch Act.

§ 5 Keeping of cattle for production

Article 2.28. Procedures on cattle by the keepers

- a. The performance of procedures as referred to in Article 2.9, third paragraph, subparagraph d (ie castration) of the Veterinarian Decree, can only be carried out if the animal is less than 4 weeks of age.
- b. The performance of procedures referred to in Article 2.4 (de-horning), subparagraph a of the Veterinarian Decree, can only be conducted by a practicing veterinarian and with a local anesthetic and in the case that it is carried out on cattle less than two months of age using an electric or hot air method, or on bovine animals older than six months by a wire saw;
- c. performing procedures referred to in Articles 2.4, part b, en2.6, parts b and c of the Decree veterinarians;
- d. maximum amount of 450ml may be given intravenously to cattle in which the active ingredients are calcium and magnesium
- e. opening up of sole ulcers in cattle.

§ 5.1. Keeping of calves for production

Article 2.29. Definitions

individual pen: space with at least three walls for the housing of one calf;

calf: cow belonging to the genus *Bos primigenius taurus*, not exceeding six months;

stall: space intended for one or more of calves and is not an individual pen;

beef calf: calf destined to be slaughtered at the age of eight months with the purpose of meat production;

meat bull- calf: males calves reared for their meat and destined to be slaughtered at the age of eight months-

Article 2.30. scope

Articles 2:32 and 2:33 are not applicable to a calf nursing from its mother.

Article 2.31. Tethering and muzzles

1. A calf is not to be tethered.

2. Notwithstanding the first paragraph, calves kept in group housing are allowed to be tethered during feeding for up to one hour.
3. the tether is designed to avoid any risk of strangulation or injury to the calf and the calf can lie down, rest, stand up and can lick without problems.
4. The tether as referred to in the third paragraph shall be inspected regularly and adjusted as necessary to ensure that the calf is comfortable with it on.
5. A calf will not be muzzled.

Article 2.32. housing

1. A calf older than 8 weeks must not be housed in an individual pen.
2. The first paragraph does not apply if a veterinarian has determined that a calf is unwell and should be isolated to be treated.
3. Calves reared in a group pen (not in individual pen) must receive the following space allowances :
 - a. calves less than 150 kg, at least 1.5 m² of floor space;
 - b. calves between 150 kg to 220 kg, at least 1.7 m² of floor space;
 - c. calves of 220 kg or more, at least 1.8 m² of floor space.

Article 2.33. Individual pens

1. If a calf is kept in an individual pen then the pen must have a width of at least the height of the withers of the standing calf, and a length of at least 1.1 times the body length of the calf, measured from the nose to the back of the coccyx bone.
2. With the exception of individual pens used for isolating sick animals, the walls of individual pens are designed such that calves can see and touch each other.

Article 2.34. Design of stall

1. The stall is arranged such that a calf can lie down, rest, stand-up and can lick itself without any trouble.
2. If calves are kept in a stall with cubicles, the number of cubicles is at least equal to the number of calves.

Article 2.35. floor

1. The floor of the stall is anti-slip and adapted to the size and weight of the calves and forms a rigid, even and stable surface.
2. Ministerial rules can be made about the properties of the floor.

Article 2.36. lying area

1. The lying area of a stall must be comfortable, clean, have a proper drainage and is not harmful to the calves.
2. The floor of the stall for calves of less than two weeks of age is covered with adequate bedding.
3. With the exception of meat bull-calves older than two months, calves must have a lying area which has bedding material (such as shavings, straw etc...) or has a plastic-mat, wooden-slats or rubber top layer.
4. The surface area of the lying area in group stalls must be at least 0,50m² per calf for calves up to 3 months of age and 0,70m² per calf for calves older than 3 months of age.

Article 2.37. Lighting

1. Calves have adequate natural or artificial lighting.
2. Adequate natural or artificial lighting can be considered adequate when at least 2% of the surface of the wall or roof of the barn is made out of translucent material, and 5% if barn is used for calves not destined for meat, wherein the material is such that the light is spread evenly into the barn.

Article 2.38. Feed Management

1. If calves are kept in groups and not fed ad libitum or by an automatic feeding system, the width of the feed barrier is such that all calves can eat at the same time.
2. The width of the feeding fence is at least 0.40 m per calf.
3. In stalls with a food-dispenser, there must be one eating area per group of 3 calves.

Article 2.39. Feeding and watering equipment

The equipment used for feeding and watering are designed, built, installed and maintained in such a way that contamination of feed and water is minimized.

Article 2.40. Equipment

Measures referred to in Article 2.5, paragraph nine, are in any case the use of alternative methods of feeding and maintaining a satisfactory environment.

Article 2.41. Feeding schedule

1. Calves are fed at least twice a day.
2. Without prejudice to Articles 1.7, section e, and 2.4, sixth paragraph, calves are given feed that meets their behavioral needs.
3. the feed contains sufficient iron to achieve an average blood hemoglobin level of at least 4.5 mmol/l
4. calves older than two weeks of age must receive a daily ration of fibrous feed and the amount for calves from 8 to 20 weeks of age will be increased from 50 grams to 250 grams per day.

Article 2.42. Watering

1. Notwithstanding article 1.7, section f, a calf older than two weeks may receive liquid other than water to suit its needs for liquid/drinking.
2. Fresh drinking water must be permanently available during hot weather and for sick calves.
3. Calves must be given as quickly as possible, and in any case never longer than 6 hours, colostrum after its birth.

Article 2.43. Inspection

Notwithstanding Article 2.4, second paragraph, calves kept indoors must be inspected at least twice a day and calves kept outdoors at least once a day.

Article 2.44. Cleaning and disinfection

1. The stable, individual and group pens, and all equipment used for calves are to be cleaned appropriately and disinfected to prevent cross-contamination and spread of pathogens.
2. Faeces, urine and uneaten or spilled feed shall be removed as often as possible, so the smell is minimized and no flies and rodents are attracted.

Article 2.45. Sick and injured animals

The isolation-area provided for in article 2.4, paragraph 4 consists of a suitable space that includes dry, comfortable bedding which can accommodate at least 1% of the number of calves kept and if this is less than one, at least one calf.

Article 2.46. Imports from third countries

Imports of calves brought in from a third country via the Netherlands are in the territory of the European Union for the first time is only permitted if the calves are accompanied by a valid certificate issued by the competent authority of that third country, completed and dated according to Article 8 of Directive 2008/119 / EC of 18 December 2008 laying down minimum standards for the protection of calves (Codified version; OJEU 2008, L 10).

10.4 EC 1/2005 On protection of animals during transport (pertinent to cattle)

EC 1/2005 on the protection of animals during transport

ANNEX I

CHAPTER 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.
2. Animals that are injured or that present physiological weaknesses or pathological processes shall not be considered fit for transport and in particular if:
 - (a) they are unable to move independently without pain or to walk unassisted;
 - (b) they present a severe open wound, or prolapse;
 - (c) they are pregnant females for whom 90 % or more of the expected gestation period has already passed, or females who have given birth in the previous week;
 - (d) they are new-born mammals in which the navel has not completely healed;
 - (e) they are calves of less than ten days of age, unless they are transported less than 100 km;
3. However, sick or injured animals may be considered fit for transport if they are:
 - (a) slightly injured or ill and transport would not cause additional suffering; in cases of doubt, veterinary advice shall be sought;
 - (b) transported for the purposes of Council Directive 86/609/EEC (1) if the illness or injury is part of a research programme;
 - (c) transported under veterinary supervision for or following veterinary treatment or diagnosis. However, such transport shall be permitted only where no unnecessary suffering or ill treatment is caused to the animals concerned;
 - (d) animals that have been submitted to veterinary procedures in relation to farming practices such as dehorning or castration, provided that wounds have completely healed.

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.

5. Sedatives shall not be used on animals to be transported unless strictly necessary to ensure the welfare of the animals and shall only be used under veterinary supervision.

6. Lactating females of bovine, ovine and caprine species not accompanied by their offspring shall be milked at intervals of not more than 12 hours.

CHAPTER II MEANS OF TRANSPORT

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;
- (b) protect the animals from inclement weather, extreme temperatures and adverse changes in climatic conditions;
- (c) be cleaned and disinfected;
- (d) prevent the animals escaping or falling out and be able to withstand the stresses of movements;
- (e) ensure that air quality and quantity appropriate to the species transported can be maintained;
- (f) provide access to the animals to allow them to be inspected and cared for;
- (g) present a flooring surface that is anti-slip;
- (h) present a flooring surface that minimises the leakage of urine or faeces;
- (i) provide a means of lighting sufficient for inspection and care of the animals during transport.

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.

1.4. Partitions shall be strong enough to withstand the weight of animals. Fittings shall be designed for quick and easy operation.

1.5. Calves of less than six months shall be provided with appropriate bedding material or equivalent material which guarantees their comfort appropriate to the species, the number of animals being transported, the journey time, and the weather. This material has to ensure adequate absorption of urine and faeces.

2. Additional provisions for transport by road or rail

2.1. Vehicles in which animals are transported shall be clearly and visibly marked indicating the presence of live animals, except when the animals are transported in containers marked in accordance with paragraph 5.1.

2.2. Road vehicles shall carry suitable equipment for loading and unloading.

CHAPTER III TRANSPORT PRACTICES

1. Loading, unloading and handling

1.1. Due regard shall be paid to the need of certain categories of animals, such as wild animals, to become acclimatised to the mode of transport prior to the proposed journey.

1.2. Where loading or unloading operations last for more than four hours, except for poultry:

(a) appropriate facilities shall be available in order to keep, feed and water the animals outside the means of transport without being tied;

(b) operations shall be supervised by an authorised veterinarian and particular precautions shall be taken to ensure that the welfare of the animals is properly maintained during these operations.

Facilities and procedures

1.3. Facilities for loading and unloading, including the flooring, shall be designed, constructed, maintained and operated so as to:

(a) prevent injury and suffering and minimise excitement and distress during animal movements as well as to ensure the safety of the animals. In particular, surfaces shall not be slippery and lateral protections shall be provided so as to prevent animals from escaping;

(b) be cleaned and disinfected.

1.4. (a) Ramps shall not be steeper than an angle of 20 degrees, that is 36,4 % to the horizontal for calves and an angle of 26 degrees 34 minutes, that is 50 % to the horizontal for cattle other than calves. Where the slope is steeper than 10 degrees, that is 17,6 % to the horizontal, ramps shall be fitted

with a system, such as provided by foot battens, which ensure that the animals climb or go down without risks or difficulties;

(b) lifting platforms and upper floors shall have safety barriers so as to prevent animals falling or escaping during loading and unloading operations.

1.5. Goods which are being transported in the same means of transport as animals shall be positioned so that they do not cause injury, suffering or distress to the animals.

1.6. Appropriate lighting shall be provided during loading and unloading.

Handling

1.8. It shall be prohibited to:

(a) strike or kick the animals;

- (b) apply pressure to any particularly sensitive part of the body in such a way as to cause them unnecessary pain or suffering;
- (c) suspend the animals themselves by mechanical means;
- (d) lift or drag the animals by head, ears, horns, legs, tail or fleece, or handle them in such a way as to cause them unnecessary pain or suffering;
- (e) use prods or other implements with pointed ends;
- (f) knowingly obstruct any animal which is being driven or led through any part where animals are handled.

1.9. The use of instruments which administer electric shocks shall be avoided as far as possible. In any case, these instruments shall only be used for adult bovine animals and adult pigs which refuse to move and only when they have room ahead of them in which to move. The shocks shall last no longer than one second, be adequately spaced and shall only be applied to the muscles of the hindquarters. Shocks shall not be used repeatedly if the animal fails to respond.

1.10. Markets or assembly centres shall provide equipment for tethering animals when necessary. Animals not used to being tied shall remain untied. Animals shall have access to water.

1.11. Animals shall not be tied by the horns, the antlers, the nose rings nor by legs tied together. Calves shall not be muzzled. When animals need to be tied, the ropes, tethers or other means used shall be:

- (a) strong enough not to break during normal transport conditions;
- (b) such as to allow the animals, if necessary, to lie down and to eat and drink;
- (c) designed in such a way as to eliminate any danger of strangulation or injury, and so as to allow animals to be quickly released.

Separation

1.12. Animals shall be handled and transported separately in the following cases:

- (a) animals of different species;
- (c) animals of significantly different sizes or ages;
- (d) sexually mature males from females;
- (e) animals with horns from animals without horns;
- (f) animals hostile to each other;
- (g) tied animals from untied animals.

1.13. Points (a), (b), (c) and (e) of paragraph 1.12. shall not apply where the animals have been raised in compatible groups, are accustomed to each other, where separation will cause distress or where females are accompanied by dependent young.

2. During transport

2.1. Space allowances shall at least comply with the figures laid down, in respect of the animals and the means of transport referred to, in Chapter VII.

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.

2.7. During transport, animals shall be offered water, feed and the opportunity to rest as appropriate to their species and age, at suitable intervals and in particular as referred to in Chapter V. If not otherwise specified, Mammals and Birds shall be fed at least every 24 hours and watered at least every 12 hours. The water and feed shall be of good quality and presented to the animals in a way which minimises contamination. Due regard shall be paid to the need of animals to become accustomed to the mode of feeding and watering.

CHAPTER V

WATERING AND FEEDING INTERVAL, JOURNEY TIMES AND RESTING PERIODS

1. Domestic Equidae, domestic animals of bovine, ovine, caprine and porcine species

1.1. The requirements laid down in this Section apply to the movement of domestic Equidae, except registered Equidae, domestic animals of bovine, ovine, caprine and porcine species, except in the case of air transport.

1.2. Journey times for animals belonging to the species referred to in point 1.1. shall not exceed eight hours.

1.3. The maximum journey time in point 1.2. may be extended if the additional requirements of Chapter VI are met.

1.4. The watering and feeding intervals, journey times and rest periods when using road vehicles which meet the requirements in point 1.3. are defined as follows:

- (a) Unweaned calves which are still on a milk diet must, after nine hours of travel, be given a rest period of at least one hour sufficient in particular for them to be given liquid and if necessary fed. After this rest period, they may be transported for a further nine hours;
- (d) All other animals of the species referred to in point 1.1. must, after 14 hours of travel, be given a rest period of at least one hour sufficient for them in particular to be given liquid and if necessary fed. After this rest period, they may be transported for a further 14 hours.

1.5. After the journey time laid down, animals must be unloaded, fed and watered and be rested for at least 24 hours.

1.8. In the interests of the animals, the journey times in points 1.3, 1.4. and 1.7(b) may be extended by two hours, taking account in particular of proximity to the place of destination.

1.9. Without prejudice to the provisions of points 1.3. to 1.8, Member States are authorised to provide for a maximum non-extendible journey time of eight hours for the transport of animals destined for slaughter, where the transport is carried out exclusively from a place of departure to a place of destination both situated on their own territory.

CHAPTER VI

ADDITIONAL PROVISIONS FOR LONG JOURNEYS OF DOMESTIC EQUIDAE AND DOMESTIC ANIMALS OF BOVINE, OVINE, CAPRINE AND PORCINE SPECIES

1. All long journeys

Roof

1.1. The means of transport shall be equipped with a roof of light-colour and be properly insulated.

Floor and Bedding

1.2. Animals shall be provided with appropriate bedding or equivalent material which guarantees their comfort appropriate to the species, the number of animals being transported, the journey time, and the weather. This material has to ensure adequate absorption of urine and faeces.

Feed

1.3. The means of transport shall carry a sufficient quantity of appropriate feeding stuff for the feeding requirements of the animals in question during the journey concerned. The feeding stuffs shall be protected from the weather and from contaminants such as dust, fuel, exhaust gases and animal urine and dung.

1.4. Where specific feeding equipment is used for the feeding of animals, that equipment shall be transported in the means of transport.

1.5. Where feeding equipment as referred to in paragraph 1.4. is used, it shall be so designed that, if necessary, it is attached to the means of transport to prevent its being overturned. When the means of transport is moving and when the equipment is not in use, it shall be stored separate from the animals.

Partitions

1.7. The means of transport must be fitted with partitions so that separate compartments may be created, while providing all the animals with free access to water.

1.8. The partitions shall be constructed in such a way that they can be placed in different positions so that the size of compartment can be adapted to specific requirements, and to the type, size and number of animals.

Minimum criteria for certain species

1.9. Except if accompanied by their mother, long journeys are only permitted for domestic Equidae and domestic animals of bovine and porcine species if;

— calves are older than fourteen days,

2. Water supply for transport by road, rail or sea containers

2.1. The means of transport shall be equipped with a water supply that makes it possible for the attendant to provide water instantly whenever it is necessary during the journey, so that each animal has access to water.

2.2. The watering devices shall be in good working order and be appropriately designed and positioned for the categories of animals to be watered on board the vehicle.

2.3. The water tanks' total capacity for each means of transport shall be at least equal to 1,5 % of its maximum payload. Water tanks must be designed so that they can be drained and cleaned after each journey and must be fitted with a system allowing their water level to be checked. They must be connected to drinking devices within the compartments and maintained in good working order.

3. Ventilation for means of transport by road and temperature monitoring

3.1. Ventilation systems on means of transport by road shall be designed, constructed and maintained in such way that, at any time during the journey, whether the means of transport is stationary or moving, they are capable of maintaining a range of temperatures from 5 °C to 30 °C within the means of transport, for all animals, with a +/- 5 °C tolerance, depending on the outside temperature.

3.2. The ventilation system must be capable of ensuring even distribution throughout with a minimum airflow of nominal capacity of 60 m³/h/KN of payload. It must be capable of operating for at least 4 hours, independently of the vehicle engine.

3.3. Means of transport by road must be fitted with a temperature monitoring system as well as with a means of recording such data. Sensors must be located in the parts of the lorry which, depending on its design characteristics, are most likely to experience the worst climatic conditions. Temperature recordings obtained in such manner shall be dated and made available to the competent authority upon request.

3.4. Means of transport by road must be fitted with a warning system in order to alert the driver when the temperature in the compartments where animals are located reaches the maximum or the minimum limit.

4. Navigation System

4.1. Means of transport by road must be equipped as from 1 January 2007 for means of transport by road for the first time in service and as from 1 January 2009 onwards for all means of transport, with the appropriate Navigation System allowing for recording and providing information equivalent to those mentioned in the journey log as referred to in Annex II, Section 4, and information concerning opening/closing of the loading flap.

CHAPTER VII

SPACE ALLOWANCES

Space allowances for animals shall comply at least with the following figures:

B. Bovine animals

Transport by road

Category	Approximate weight (in kg)	Area in m ² /animal
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Small calves	50	0,30 to 0,40
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Medium sized calves	110	0,40 to 0,70
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Heavy calves	200	0,70 to 0,95
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Medium sized cattle	325	0,95 to 1,30
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Heavy cattle	550	1,30 to 1,60
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Very heavy cattle	> 700	> 1,60
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These figures may vary, depending not only on the animals' weight and size but also on their physical condition, the meteorological conditions and the likely journey time.

ANNEX II

JOURNEY LOG

(as referred to in Article 5(4), Article 8(2), points (a) and (c) of Article 14 and Article 21(2))

1. A person planning a long journey shall prepare, stamp and sign all pages of the journey log in accordance with the provisions of this Annex.

2. The journey log shall comprise the following sections:

Section 1 — Planning;

Section 2 — Place of departure;

Section 3 — Place of destination;

Section 4 — Declaration by transporter;

Section 5 — Specimen anomaly report.

The pages of the journey log shall be fastened together.

Models of each section are set out in the Appendix hereto.

3. The organiser shall:

(a) identify each journey log with a distinguishing number;

(b) ensure that a signed copy of Section 1 of the journey log, properly completed except as regards the veterinary– certificate numbers, is received within two working days before the time of departure by the competent authority of the place of departure in a manner defined by such authority;

(c) comply with any instruction given by the competent authority under point (a) of Article 14(1);

(d) ensure that the journey log is stamped as required in Article 14(1);

(e) ensure that the journey log accompanies the animals during the journey until the point of destination or, in case of export to a third country, at least until the exit point.

4. Keepers at the place of departure and, when the place of destination is located within the territory of the Community, keepers at the place of destination, shall complete and sign the relevant sections of the journey log. They shall inform the competent authority of any reservations concerning compliance with the provisions of this Regulation using the specimen form in Section 5 as soon as possible.

5. When the place of destination is located within the territory of the Community, keepers at the place of destination

shall keep the journey log, except Section 4, for at least three years from the date of arrival at the place of destination. The journey log shall be made available to the competent authority upon request.

6. When the journey has been completed within the territory of the Community, the transporter shall complete and sign Section 4 of the journey log.

7. If animals are exported to a third country, transporters shall give the journey log to the official veterinarian at the exit point. In the case of export of live bovine animals with refunds, Section 3 of the journey log shall not be required if the agricultural legislation requires a report.

8. The transporter referred to in Section 3 of the journey log shall keep:

(a) a copy of the completed journey log;

(b) the corresponding record sheet or print out as referred to in Annex I or Annex IB to Regulation (EEC) No 3821/85 if the vehicle is covered by that Regulation. Documents referred to in points (a) and (b) shall be made available to the competent authority which granted the transporter's authorisation and upon request to the competent authority of the place of departure, within one month after it has been completed and shall be kept by the transporter for a period of at least three years from the date of the check. Documents referred to in point (a) shall be returned to the competent authority of the place of departure within 1 month after the completion of the journey,

unless the systems referred to in Article 6(9) were used. A simplified version of the journey log and guidelines for the presentation of the records referred to in Article 6(9) shall be established in accordance with the procedure referred to in Article 31(2), when vehicles are equipped with the systems referred to in Article 6(9).

10.5 Council regulation (EC) No 1099/2009 On the protection of animals at the time of killing

COUNCIL REGULATION (EC) No 1099/2009 of 24 September 2009 on the protection of animals at the time of killing

(Text with EEA relevance)

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 37 thereof,

Having regard to the proposal from the Commission,

Having regard to the Opinion of the European Parliament (1),

Having regard to the Opinion of the European Economic and Social Committee (2),

After consultation of the Committee of the Regions,

Whereas:

(1)

Council Directive 93/119/EC of 22 December 1993 on the protection of animals at the time of slaughter or killing (3) establishes common minimum rules for the protection of animals at the time of slaughter or killing in the Community. That Directive has not been substantially amended since its adoption.

(2)

Killing animals may induce pain, distress, fear or other forms of suffering to the animals even under the best available technical conditions. Certain operations related to the killing may be stressful and any stunning technique presents certain drawbacks. Business operators or any person involved in the killing of animals should take the necessary measures to avoid pain and minimise the distress and suffering of animals during the slaughtering or killing process, taking into account the best practices in the field and the methods permitted under this Regulation. Therefore, pain, distress or suffering should be considered as avoidable when business operators or any person involved in the killing of animals breach one of the requirements of this Regulation or use permitted practices without reflecting the state of the art, thereby inducing by negligence or intention, pain, distress or suffering to the animals.

(3)

The protection of animals at the time of slaughter or killing has been covered by Community law since 1974, and was substantively reinforced by Directive 93/119/EC. However, large discrepancies have been observed between the Member States in implementing that Directive and major welfare concerns and differences susceptible to affect competitiveness between business operators have been pointed out.

(4)

Animal welfare is a Community value that is enshrined in the Protocol (No 33) on protection and welfare of animals annexed to the Treaty establishing the European Community (Protocol (No 33)).

The protection of animals at the time of slaughter or killing is a matter of public concern that affects consumer attitudes towards agricultural products. In addition, improving the protection of animals at the time of slaughter contributes to higher meat quality and indirectly has a positive impact on occupational safety in slaughterhouses.

(5)

National law concerning the protection of animals at the time of slaughter or killing has an impact on competition and, accordingly, on the operation of the internal market in products of animal origin included in Annex I to the Treaty establishing the European Community. It is necessary to establish common rules in order to ensure the rational development of the internal market in those products.

(6)

The European Food Safety Authority (EFSA), established by Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety (4), has adopted two opinions on the welfare aspects of the main systems of stunning and killing of certain species of animals, namely on the welfare aspects of the main systems of stunning and killing the main commercial species of animals, in 2004, and on the welfare aspects of the main systems of stunning and killing applied to commercially farmed deer, goats, rabbits, ostriches, ducks, geese and quail, in 2006. Community law in this area should be updated to take into account those scientific opinions. Recommendations to phase out the use of carbon dioxide for pigs and the use of waterbath stunners for poultry are not included in this Regulation because the impact assessment revealed that such recommendations were not economically viable at present in the EU. However, it is important to continue this discussion in the future. To this end, the Commission should prepare and submit to the European Parliament and to the Council a report on the various stunning methods for poultry, and in particular multiple-bird waterbath stunners. Furthermore, other recommendations should be excluded from this Regulation because they refer to technical parameters that should be part of implementing measures or Community guidelines. Recommendations on farm fish are not included in this Regulation because there is a need for further scientific opinion and economic evaluation in this field.

(7)

In 2007, the World Organisation for Animal Health (OIE) adopted the Terrestrial Animal Health Code which includes guidelines for the slaughter of animals and for the killing of animals for disease control purposes. Those international guidelines contain recommendations concerning the handling, restraining, stunning and bleeding of animals in slaughterhouses and the killing of animals in cases of outbreak of contagious diseases. Those international standards should also be taken into account in this Regulation.

(8)

Since the adoption of Directive 93/119/EC, Community food safety legislation applicable to slaughterhouses has been profoundly amended by the adoption of Regulation (EC) No 852/2004 of the European Parliament and of the Council of 29 April 2004 on hygiene of foodstuffs (5) and Regulation (EC) No 853/2004 of the European Parliament and of the Council of 29 April 2004 laying down specific hygiene rules for food of animal origin (6). Those Regulations emphasise the responsibility of food business operators to ensure food safety. Slaughterhouses are also subject to a pre-approval procedure whereby the construction, layout and equipment are examined by the competent authority to ensure that they comply with the corresponding technical rules on food

safety. Animal welfare concerns should be better integrated into slaughterhouses, their construction and layout, as well as the equipment used therein.

(9)

Official controls in the food chain have also been reorganised by the adoption of Regulation (EC) No 882/2004 of the European Parliament and of the Council of 29 April 2004 on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules (7) and Regulation (EC) No 854/2004 of the European Parliament and of the Council of 29 April 2004 laying down specific rules for the organisation of official controls on products of animal origin intended for human consumption (8).

(10)

Conditions under which animals kept for farming purposes are killed have a direct or indirect impact on the market for food, feed or other products and on the competitiveness of the business operators concerned. Therefore, such killing operations should be covered by Community law. However, traditionally farmed species such as horses, donkeys, cattle, sheep, goats or pigs can also be kept for other purposes, such as, for example, pets, animals for shows, work purposes, or sports. Where the killing of animals of such species produces food or other products, those operations should fall within the scope of this Regulation. Consequently, the killing of wild or stray animals for population control purposes should not fall within the scope of this Regulation.

(11)

Fish present substantial physiological differences from terrestrial animals and farmed fish are slaughtered and killed in a very different context, in particular as regards the inspection process. Furthermore, research on the stunning of fish is far less developed than for other farmed species. Separate standards should be established on the protection of fish at killing. Therefore, provisions applicable to fish should, at present, be limited to the key principle. Further initiatives by the Community should be based on a scientific risk assessment for the slaughter and killing of fish performed by EFSA and taking into account the social, economic and administrative implications.

(12)

It is an ethical duty to kill productive animals which are in severe pain where there is no economically viable way to alleviate such pain. In most cases, animals can be killed respecting proper welfare conditions. However, under exceptional circumstances, such as accidents in remote locations, where competent personnel and equipment cannot reach the animals, complying with optimal welfare rules could prolong their suffering. In the interest of the animals it is, therefore, appropriate to exclude emergency killing from the application of certain provisions of this Regulation.

(13)

Occasionally animals can be dangerous for human beings, possibly putting human life at risk, inflicting serious injuries or transmitting deadly diseases. Preventing those risks is usually performed through the proper restraining of animals but it may also be necessary to kill dangerous animals to end such risks in certain circumstances. Under those circumstances, the killing cannot always be performed under the best welfare conditions due to the emergency. Therefore, it is necessary to derogate from the obligation to stun or immediately kill the animals in those cases.

(14)

Hunting or recreational fishing activities take place in a context where conditions of killing are very different from the ones used for farmed animals and hunting is subject to specific legislation. It is therefore appropriate to exclude killings taking place during hunting or recreational fishing from the scope of this Regulation.

(15)

Protocol No (33) underlines the need to respect the legislative or administrative provisions and customs of the Member States relating, in particular, to religious rites, cultural traditions and regional heritage when formulating and implementing the Community's policies on, inter alia, agriculture and the internal market. It is therefore appropriate to exclude from the scope of this Regulation cultural events, where compliance with animal welfare requirements would adversely affect the very nature of the event concerned.

(16)

In addition, cultural traditions refer to an inherited, established, or customary pattern of thought, action or behaviour which includes in fact the concept of something transmitted by, or acquired from, a predecessor. They contribute to fostering long-standing social links between generations. Provided that those activities do not affect the market of products of animal origin and are not motivated by production purposes, it is appropriate to exclude the killing of animals taking place during those events from the scope of this Regulation.

(17)

The slaughter of poultry, rabbits and hares for private domestic consumption is not performed on a scale likely to affect the competitiveness of commercial slaughterhouses. Similarly, the necessary efforts required from public authorities to detect and control such operations would not be proportionate to the potential problems to be solved. It is, therefore, appropriate to exclude those operations from the scope of this Regulation.

(18)

Derogation from stunning in case of religious slaughter taking place in slaughterhouses was granted by Directive 93/119/EC. Since Community provisions applicable to religious slaughter have been transposed differently depending on national contexts and considering that national rules take into account dimensions that go beyond the purpose of this Regulation, it is important that derogation from stunning animals prior to slaughter should be maintained, leaving, however, a certain level of subsidiarity to each Member State. As a consequence, this Regulation respects the freedom of religion and the right to manifest religion or belief in worship, teaching, practice and observance, as enshrined in Article 10 of the Charter of Fundamental Rights of the European Union.

(19)

There is sufficient scientific evidence to demonstrate that vertebrate animals are sentient beings which should therefore fall within the scope of this Regulation. Reptiles and amphibians, however, are not animals commonly farmed in the Community and it would not, therefore, be appropriate or proportionate to include them within its scope.

(20)

Many killing methods are painful for animals. Stunning is therefore necessary to induce a lack of consciousness and sensibility before, or at the same time as, the animals are killed. Measuring the lack of consciousness and sensibility of an animal is complex and needs to be performed under scientifically approved methodology. Monitoring through indicators, however, should be carried out to evaluate the efficiency of the procedure under practical conditions.

(21)

Monitoring stunning efficiency is mainly based on the evaluation of consciousness and sensibility of the animals. The consciousness of an animal is essentially its ability to feel emotions and control its voluntary mobility. Despite some exceptions, such as electro-immobilisations or other provoked paralysis, an animal can be presumed to be unconscious when it loses its natural standing position, is

not awake and does not show signs of positive or negative emotions such as fear or excitement. Sensibility of an animal is essentially its ability to feel pain. In general, an animal can be presumed to be insensitive when it does not show any reflexes or reactions to stimulus such as sound, odour, light or physical contact.

(22)

New stunning methods are regularly developed and proposed on the market in order to face the new challenges of the farming and meat industry. It is, therefore, important to authorise the Commission to approve new stunning methods while keeping a uniform and high level of protection for animals.

(23)

Community guidelines are a useful tool to provide business operators and competent authorities with specific information on the parameters to be used in order to ensure a high level of protection for animals while keeping a level playing field for business operators. It is, therefore, necessary to authorise the Commission to draw up such guidelines.

(24)

Depending on how they are used during the slaughtering or killing process, some stunning methods can lead to death while avoiding pain and minimising distress or suffering for the animals. Other stunning methods may not lead to death and the animals may recover their consciousness or sensibility during subsequent painful procedures. Such methods should, therefore, be completed by other techniques that lead to certain death before the recovery of the animals. It is, therefore, essential to specify which stunning methods need to be completed by a killing method.

(25)

The conditions under which animals are stunned and the results of such stunning vary in practice due to many factors. Regular assessment of the outcome of stunning should therefore be made. For that purpose, business operators should establish a representative sample to check the efficiency of their stunning practices, taking into account the homogeneity of the group of animals, and other critical factors, such as the equipment used and the personnel involved.

(26)

Some stunning protocols may prove to be sufficiently reliable to irreversibly kill the animals in all circumstances if specific key parameters are applied. In such cases, the need for checks for stunning would appear unnecessary and disproportionate. It is therefore appropriate to provide for the possibility to grant derogations from the obligations regarding checks on stunning when there is sufficient scientific evidence that a given stunning protocol provides for irreversible death to all animals under certain commercial conditions.

(27)

The welfare of animals is largely influenced by the daily management of the operations, and reliable results can only be obtained if business operators develop monitoring tools to evaluate their effects. Standard operating procedures should therefore be developed at all stages of the production cycle and should be risk-based. They should include clear objectives, responsible persons, *modus operandi*, measurable criteria, as well as monitoring and recording procedures. Key parameters set out for each stunning method should be specified in a way ensuring proper stunning of all animals submitted to the process.

(28)

Well trained and skilled personnel improve the conditions under which animals are treated. Competence with regards to animal welfare implies knowledge of the basic behavioural patterns and the needs of the species concerned as well as signs of consciousness and sensibility. It also includes

technical expertise with regard to the stunning equipment used. Personnel carrying out certain slaughter operations and people supervising the seasonal killing of fur animals should therefore be required to have a certificate of competence relevant to the operations they perform. Requiring a certificate of competence for other personnel killing animals would, however, be disproportionate to the aims pursued.

(29)

Personnel with several years of experience may be presumed to have a certain level of expertise. A transitional provision regarding the certificate of competence requirements should therefore be provided for in this Regulation with regards to such personnel.

(30)

Stunning equipment is developed and designed to be efficient in a specific context. Manufacturers should therefore provide detailed instructions to users concerning the conditions under which equipment should be used and maintained to ensure optimal welfare for the animals.

(31)

In order to ensure efficiency, stunning and restraining equipment should be properly maintained. Equipment that is used intensively may require the replacement of certain parts and even equipment occasionally used may decrease in efficiency due to corrosion or other environmental factors. Similarly, some equipment also needs to be accurately calibrated. Business operators or any person involved in the killing of animals should therefore implement maintenance procedures for that equipment.

(32)

Restraining animals is necessary for the safety of operators and the proper application of some stunning techniques. However, restraining is likely to create distress to the animals and should therefore be applied for as short a period as possible.

(33)

Animals may suffer when stunning procedures fail. This Regulation should therefore provide for appropriate back-up stunning equipment to be available to minimise pain, distress or suffering to the animals.

(34)

The scale of the slaughtering of poultry, rabbits and hares for the direct supply of small quantities of meat to the final consumer or to local retail establishments supplying such meat directly to the final consumer as fresh meat, varies from one Member State to the other due to the national rules governing this activity in accordance with Article 1(3)(d) and 4 of Regulation (EC) No 853/2004. It is, however, important to ensure that certain minimum animal welfare requirements apply also to those activities.

(35)

With regard to the slaughter of certain categories of animals, other than poultry, rabbits and hares, for private domestic consumption, certain minimum Community requirements such as prior stunning as well as national rules exist already. Therefore, it is appropriate to ensure that minimum animal welfare rules are established also in this Regulation.

(36)

Regulation (EC) No 854/2004 provides for a list of establishments from which imports into the Community of specified products of animal origin are permitted. The general requirements and the additional requirements applicable to slaughterhouses laid down in this Regulation should be taken into account for the purposes of that list.

(37)

The Community seeks to promote high welfare standards in animal livestock populations worldwide, particularly in relation to trade. It supports the specific standards and recommendations on animal welfare of the OIE, including on the slaughter of animals. Such standards and recommendations should be taken into account when equivalency with Community requirements under this Regulation needs to be established for the purpose of imports.

(38)

Guides to good practice drawn up by organisations of business operators are valuable instruments to help business operators comply with certain requirements laid down in this Regulation, such as, for instance, the development and implementation of standard operating procedures.

(39)

Slaughterhouses and the equipment used therein are designed for particular categories of animals and capacities. Where those capacities are exceeded or the equipment is used for purposes for which it was not designed, it has a negative impact on the welfare of animals. Information on these aspects should therefore be communicated to the competent authorities and should be part of the approval procedure for slaughterhouses.

(40)

Mobile slaughterhouses reduce the need for animals to be transported over long distances and therefore may contribute to safeguarding animal welfare. However, technical constraints for mobile slaughterhouses differ from fixed slaughterhouses and technical rules may need to be consequently adapted. Therefore, this Regulation should provide for the possibility to establish derogations exempting mobile slaughterhouses from the requirements on layout, construction and equipment of slaughterhouses. Pending the adoption of such derogations, it is appropriate to allow Member States to establish or maintain national rules regarding mobile slaughterhouses.

(41)

Scientific and technical progress is regularly made with regard to the construction, layout and equipment of slaughterhouses. It is therefore important to authorise the Commission to amend the requirements applicable to the construction, layout and equipment of slaughterhouses while keeping a uniform and high level of protection for animals.

(42)

Community guidelines are useful to provide business operators and the competent authorities with specific information on the construction, layout and equipment of slaughterhouses in order to ensure a high level of protection for animals, while maintaining a level playing field for business operators. It is therefore necessary to authorise the Commission to adopt such guidelines.

(43)

Slaughter without stunning requires an accurate cut of the throat with a sharp knife to minimise suffering. In addition, animals that are not mechanically restrained after the cut are likely to endure a slower bleeding process and, thereby, prolonged unnecessary suffering. Animals of bovine, ovine and caprine species are the most common species slaughtered under this procedure. Therefore, ruminants slaughtered without stunning should be individually and mechanically restrained.

(44)

Science and technical progress are regularly made with regard to the handling and restraining of animals at slaughterhouses. It is therefore important to authorise the Commission to amend the

requirements applicable to the handling and restraining of animals before slaughter while keeping a uniform and high level of protection for animals.

(45)

Community guidelines are useful to provide business operators and competent authorities with specific information on the handling and restraining of animals before slaughter in order to ensure a high level of protection for the animals, while maintaining a level playing field for business operators. It is therefore necessary to authorise the Commission to adopt such guidelines.

(46)

The experience gained in some Member States has shown that the appointment of a specifically qualified person as an animal welfare officer to coordinate and follow up the implementation of animal welfare operating procedures in slaughterhouses has provided positive welfare benefits. This measure should therefore be applied throughout the Community. The animal welfare officer should have sufficient authority and technical competence to provide relevant guidance to slaughter line personnel.

(47)

Small slaughterhouses predominantly involved in the direct sale of food to the final consumer do not require a complex system of management to implement the general principles of this Regulation. The requirement to have an animal welfare officer in place would therefore be disproportionate to the objectives pursued in those cases and this Regulation should provide for a derogation from that requirement for such slaughterhouses.

(48)

Depopulation often involves crisis management with parallel priorities, such as animal health, public health, environment, or animal welfare. Whilst it is important that animal welfare rules are complied with at all stages in the process of depopulation, it may occur that under exceptional circumstances compliance with those rules may put human health at risk or may significantly slow down the process of eradication of a disease, thereby exposing more animals to sickness and death.

(49)

Accordingly, the competent authorities should be permitted to derogate from certain provisions of this Regulation on a case-by-case basis where the animal health situation requires the emergency killing of animals and/or when no suitable alternatives are available to provide optimum welfare for them. Such derogations should not, however, be a substitute for proper planning. To this end, the level of planning should be increased and animal welfare properly integrated into contingency plans for contagious diseases.

(50)

For the purpose of animal disease notification procedures, information on outbreaks of diseases in accordance with Directive 82/894/EEC of 21 December 1982 on the notification of animal diseases within the Community (9) is notified through the Animal Disease Notification System (ADNS). At present, ADNS does not provide specific information on animal welfare but may be developed in the future to do so. As a consequence, a derogation from the reporting obligation on animal welfare in case of depopulation should be foreseen in order to envisage the further development of ADNS.

(51)

Modern stunning and restraining equipment is increasingly complex and sophisticated, requiring specific expertise and analysis. Member States should therefore ensure that sufficient scientific support is made available to the competent authority, to which officials could refer when equipment or methods for stunning animals need to be assessed.

(52)

The efficiency of each stunning method is based on the control of key parameters and its regular evaluation. Developing guides to good practice on operating and monitoring procedures for use when killing animals is important in providing proper guidance on animal welfare for business operators. The evaluation of such guides requires scientific knowledge, practical experience and compromise among stakeholders. A reference centre or network in each Member State should therefore perform this task in cooperation with the relevant interested parties.

(53)

The delivery of certificates of competence should be provided in a uniform manner. Bodies or entities issuing certificates of competence should therefore be accredited according to consistent standards which should be assessed scientifically. Accordingly, the entity providing scientific support in conformity with Article 20 should provide, where necessary, its opinion on the capacity and suitability of bodies or entities issuing certificates of competence.

(54)

Regulation (EC) No 882/2004 provides for certain action to be taken by the competent authority in case of non-compliance, in particular with regard to welfare rules. Accordingly, it is only necessary to provide for the additional action to be taken that is specific to this Regulation.

(55)

Regulation (EC) No 178/2002 provides that EFSA shall promote the networking of organisations operating in the field within the Authority's missions so as to facilitate scientific cooperation, the exchange of information, the development and implementation of joint projects, as well as the exchange of expertise and best practices in the field of food law.

(56)

The delivery of certificates of competence and training courses should be provided in a uniform manner. This Regulation should therefore set out the obligations of the Member States in this respect and the modalities under which certificates of competence are to be granted, suspended or withdrawn.

(57)

European citizens expect a minimum of welfare rules to be respected during the slaughter of animals. In certain areas, attitudes towards animals also depend on national perceptions and there is a demand in some Member States to maintain or adopt more extensive animal welfare rules than those agreed upon at Community level. In the interest of the animals and provided that it does not affect the functioning of the internal market, it is appropriate to allow Member States certain flexibility to maintain or, in certain specific fields, adopt more extensive national rules.

It is important to ensure that such national rules are not used by Member States in a way to prejudice the correct functioning of the internal market.

(58)

In some areas within the scope of this Regulation, the Council needs further scientific, social and economic information before establishing detailed rules, in particular, in the case of farmed fish and concerning the restraint by inversion of cattle. As a consequence, it is necessary that the Commission provide this information to the Council before proposing any amendment in those areas of this Regulation.

(59)

The layout, construction and equipment of slaughterhouses require long-term planning and investment. Accordingly, this Regulation should provide for an appropriate transitional period to take

into account the necessary time to allow the industry to adapt to the corresponding requirements set out in this Regulation. During that period, the requirements of Directive 93/119/EC that are applicable to the layout, construction and equipment of slaughterhouses should continue to apply.

(60)

Member States should lay down rules on penalties applicable to infringements of the provisions of this Regulation and ensure that they are implemented. Those penalties should be effective, proportionate and dissuasive.

(61)

Since the objective of this Regulation, namely to ensure a harmonised approach with regard to animal welfare standards at the time of killing, cannot be sufficiently achieved by the Member States and can therefore, by reason of the scale and effects of this Regulation, be better achieved at Community level, the Community may adopt measures, in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty. In accordance with the principle of proportionality, as set out in that Article, it is necessary and appropriate for the achievement of that objective to lay down specific rules for the killing of animals for the production of food, wool, skin, fur or other products, and for related operations. This Regulation does not go beyond what is necessary in order to achieve that objective.

(62)

The measures necessary for the implementation of this Regulation should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission (10),

HAS ADOPTED THIS REGULATION:

CHAPTER I

SUBJECT MATTER, SCOPE AND DEFINITIONS

Article 1

Subject matter and scope

1. This Regulation lays down rules for the killing of animals bred or kept for the production of food, wool, skin, fur or other products as well as the killing of animals for the purpose of depopulation and for related operations.

However as regards fish, only the requirements laid down in Article 3(1) shall apply.

2. Chapter II, except for Article 3(1) and (2) thereof, Chapter III and Chapter IV except for Article 19 thereof, shall not apply in case of emergency killing outside of a slaughterhouse or where compliance with those provisions would result in an immediate and serious risk for human health or safety.

3. This Regulation shall not apply:

(a) where animals are killed:

(i) during scientific experiments carried out under the supervision of a competent authority;

(ii) during hunting or recreational fishing activities;

(iii) during cultural or sporting events;

(b) to poultry, rabbits and hares slaughtered outside of a slaughterhouse by their owner for his/her private domestic consumption.

Article 2

Definitions

For the purposes of this Regulation, the following definitions shall apply:

- (a) 'killing' means any intentionally induced process which causes the death of an animal;
- (b) 'related operations' means operations such as handling, lairaging, restraining, stunning and bleeding of animals taking place in the context and at the location where they are to be killed;
- (c) 'animal' means any vertebrate animal, excluding reptiles and amphibians;
- (d) 'emergency killing' means the killing of animals which are injured or have a disease associated with severe pain or suffering and where there is no other practical possibility to alleviate this pain or suffering;
- (e) 'lairaging' means keeping animals in stalls, pens, covered areas or fields associated with or part of slaughterhouse operations;
- (f) 'stunning' means any intentionally induced process which causes loss of consciousness and sensibility without pain, including any process resulting in instantaneous death;
- (g) 'religious rite' means a series of acts related to the slaughter of animals and prescribed by a religion;
- (h) 'cultural or sporting events' means events which are essentially and predominantly related to long established cultural traditions or sporting activities, including racing or other forms of competitions, where there is no production of meat or other animal products or where that production is marginal compared to the event as such and not economically significant;
- (i) 'standard operating procedures' means a set of written instructions aimed at achieving uniformity of the performance of a specific function or standard;
- (j) 'slaughtering' means the killing of animals intended for human consumption;
- (k) 'slaughterhouse' means any establishment used for slaughtering terrestrial animals which falls within the scope of Regulation (EC) No 853/2004;
- (l) 'business operator' means any natural or legal person having under its control an undertaking carrying out the killing of animals or any related operations falling within the scope of this Regulation;
- (m) 'fur animals' means animals of the mammal species primarily reared for the production of fur such as minks, polecats, foxes, raccoons, coypu and chinchillas;
- (n) 'depopulation' means the process of killing animals for public health, animal health, animal welfare or environmental reasons under the supervision of the competent authority;
- (o) 'poultry' means farmed birds, including birds that are not considered to be domestic birds but which are farmed as domestic animals, with the exception of ratites;
- (p) 'restraint' means the application to an animal of any procedure designed to restrict its movements sparing any avoidable pain, fear or agitation in order to facilitate effective stunning and killing;
- (q) 'competent authority' means the central authority of a Member State competent to ensure compliance with the requirements of this Regulation or any other authority to which that central authority has delegated that competence;
- (r) 'pithing' means the laceration of the central nervous tissue and spinal cord by means of an elongated rod-shaped instrument introduced into the cranial cavity.

CHAPTER II

GENERAL REQUIREMENTS

Article 3

General requirements for killing and related operations

1. Animals shall be spared any avoidable pain, distress or suffering during their killing and related operations.
2. For the purposes of paragraph 1, business operators shall, in particular, take the necessary measures to ensure that animals:
 - (a) are provided with physical comfort and protection, in particular by being kept clean in adequate thermal conditions and prevented from falling or slipping;
 - (b) are protected from injury;
 - (c) are handled and housed taking into consideration their normal behaviour;
 - (d) do not show signs of avoidable pain or fear or exhibit abnormal behaviour;
 - (e) do not suffer from prolonged withdrawal of feed or water;
 - (f) are prevented from avoidable interaction with other animals that could harm their welfare.
3. Facilities used for killing and related operations shall be designed, constructed, maintained and operated so as to ensure compliance with the obligations set out in paragraphs 1 and 2 under the expected conditions of activity of the facility throughout the year.

Article 4

Stunning methods

1. Animals shall only be killed after stunning in accordance with the methods and specific requirements related to the application of those methods set out in Annex I. The loss of consciousness and sensibility shall be maintained until the death of the animal.

The methods referred to in Annex I which do not result in instantaneous death (hereinafter referred to as simple stunning) shall be followed as quickly as possible by a procedure ensuring death such as bleeding, pithing, electrocution or prolonged exposure to anoxia.
2. Annex I may be amended to take account of scientific and technical progress on the basis of an opinion of EFSA and in accordance with the procedure referred to in Article 25(2).

Any such amendments shall ensure a level of animal welfare at least equivalent to that ensured by the existing methods.
3. Community guidelines concerning the methods set out in Annex I may be adopted in accordance with the procedure referred to in Article 25(2).
4. In the case of animals subject to particular methods of slaughter prescribed by religious rites, the requirements of paragraph 1 shall not apply provided that the slaughter takes place in a slaughterhouse.

Article 5

Checks on stunning

1. Business operators shall ensure that persons responsible for stunning or other nominated staff carry out regular checks to ensure that the animals do not present any signs of consciousness or sensibility in the period between the end of the stunning process and death.

Those checks shall be carried out on a sufficiently representative sample of animals and their frequency shall be established taking into account the outcome of previous checks and any factors which may affect the efficiency of the stunning process.

When the outcome of the checks indicates that an animal is not properly stunned, the person in charge of stunning shall immediately take the appropriate measures as specified in the standard operating procedures drawn up in accordance with Article 6(2).

2. Where, for the purpose of Article 4(4), animals are killed without prior stunning, persons responsible for slaughtering shall carry out systematic checks to ensure that the animals do not present any signs of consciousness or sensibility before being released from restraint and do not present any sign of life before undergoing dressing or scalding.

3. For the purpose of paragraphs 1 and 2, business operators may use checking procedures as described in the guides to good practice referred to in Article 13.

4. Where appropriate, in order to take account of the high level of reliability of certain stunning methods and on the basis of an opinion of EFSA, derogations from the requirements laid down in paragraph 1 may be adopted in accordance with the procedure referred to in Article 25(2).

Article 6

Standard operating procedures

1. Business operators shall plan in advance the killing of animals and related operations and shall carry them out in accordance with standard operating procedures.

2. Business operators shall draw up and implement such standard operating procedures to ensure that killing and related operations are carried out in accordance with Article 3(1).

As regards stunning, the standard operating procedures shall:

(a) take into account the manufacturers' recommendations;

(b) define for each stunning method used, on the basis of available scientific evidence, the key parameters set out in Chapter I of Annex I ensuring their effectiveness to stun the animals;

(c) specify the measures to be taken when the checks referred to in Article 5 indicate that an animal is not properly stunned or, in the case of animals slaughtered in accordance with Article 4(4), that the animal still presents signs of life.

3. For the purpose of paragraph 2 of this Article, a business operator may use standard operating procedures as described in the guides to good practice referred to in Article 13.

4. Business operators shall make available to the competent authority their standard operating procedures upon request.

Article 7

Level and certificate of competence

1. Killing and related operations shall only be carried out by persons with the appropriate level of competence to do so without causing the animals any avoidable pain, distress or suffering.

2. Business operators shall ensure that the following slaughter operations are only carried out by persons holding a certificate of competence for such operations, as provided for in Article 21, demonstrating their ability to carry them out in accordance with the rules laid down in this Regulation:

(a) the handling and care of animals before they are restrained;

(b) the restraint of animals for the purpose of stunning or killing;

(c) the stunning of animals;

- (d) the assessment of effective stunning;
- (e) the shackling or hoisting of live animals;
- (f) the bleeding of live animals;
- (g) the slaughtering in accordance with Article 4(4).

3. Without prejudice to the obligation set out in paragraph 1 of this Article, the killing of fur animals shall be carried out in the presence and under the direct supervision of a person holding a certificate of competence as referred to in Article 21 issued for all the operations carried out under his supervision. Business operators of fur farms shall notify the competent authority in advance when animals are to be killed.

Article 8

Instructions for the use of restraining and stunning equipment

Products marketed or advertised as restraining or stunning equipment shall only be sold when accompanied by appropriate instructions concerning their use in a manner which ensures optimal conditions for the welfare of animals. Those instructions shall also be made publicly available by the manufacturers via the Internet. Those instructions shall in particular specify:

- (a) the species, categories, quantities and/or weights of animals for which the equipment is intended to be used;
- (b) the recommended parameters corresponding to the different circumstances of use, including the key parameters set out in Chapter I of Annex I;
- (c) for stunning equipment, a method for monitoring the efficiency of the equipment as regards compliance with the rules laid down in this Regulation;
- (d) the recommendations for maintenance and, where necessary, calibration of the stunning equipment.

Article 9

Use of restraining and stunning equipment

1. Business operators shall ensure that all equipment used for restraining or stunning animals is maintained and checked in accordance with the manufacturers' instructions by persons specifically trained for that purpose.

Business operators shall draw up a record of maintenance. They shall keep those records for at least one year and shall make them available to the competent authority upon request.

2. Business operators shall ensure that during stunning operations appropriate back-up equipment is immediately available on the spot and is used in the case of failure of the stunning equipment initially used. The back-up method may differ from that first used.

3. Business operators shall ensure that animals are not placed in restraining equipment, including head restraints, until the person in charge of stunning or bleeding is ready to stun or bleed them as quickly as possible.

Article 10

Private domestic consumption

Only the requirements of Articles 3(1), 4 (1) and 7(1) shall apply to the slaughtering of animals, other than poultry, rabbits and hares, and the related operations outside of a slaughterhouse by their

owner or by a person under the responsibility and supervision of the owner, for private domestic consumption.

However, also the requirements laid down in Article 15(3) and in points 1.8 to 1.11, 3.1 and, in as far as it refers to simple stunning, point 3.2 of Annex III shall apply to the slaughtering of animals, other than poultry, rabbits, hares, pigs, sheep and goats, outside of a slaughterhouse by their owner or by a person under the responsibility and supervision of the owner for private domestic consumption.

Article 11

Direct supply of small quantities of poultry, rabbits and hares

1. Only the requirements of Articles 3(1), 4(1) and 7(1) shall apply to the slaughtering of poultry, rabbits and hares on the farm for the purpose of directly supplying small quantities of meat by the producer to the final consumer or to local retail establishments supplying such meat directly to the final consumer as fresh meat, provided that the number of animals slaughtered on the farm does not exceed the maximum number of animals to be established in accordance with the procedure referred to in Article 25(2).

2. The requirements laid down in Chapters II and III of this Regulation shall apply to the slaughtering of such animals when their number exceeds the maximum number referred to in paragraph 1 of this Article.

Article 12

Imports from third countries

The requirements laid down in Chapters II and III of this Regulation shall apply for the purposes of Article 12(2)(a) of Regulation (EC) No 854/2004.

The health certificate accompanying meat imported from third countries shall be supplemented by an attestation certifying that requirements at least equivalent to those laid down in Chapters II and III of this Regulation have been met.

Article 13

Development and dissemination of guides to good practice

1. Member States shall encourage the development and dissemination of guides to good practice to facilitate the implementation of this Regulation.

2. When such guides to good practice are drawn up, they shall be developed and disseminated by organisations of business operators:

(a) in consultation with representatives of non governmental organisations, competent authorities and other interested parties;

(b) having regard to scientific opinions as referred to in Article 20(1)(c).

3. The competent authority shall assess guides to good practice in order to ensure that they have been developed in accordance with paragraph 2 and that they are consistent with existing Community guidelines.

4. Where organisations of business operators fail to submit guides to good practice, the competent authority may develop and publish its own guides to good practice.

5. Member States shall forward to the Commission all guides to good practice validated by the competent authority. The Commission shall set up and run a registration system for such guides and make it available to Member States.

CHAPTER III

ADDITIONAL REQUIREMENTS APPLICABLE TO SLAUGHTERHOUSES

Article 14

Layout, construction and equipment of slaughterhouses

1. Business operators shall ensure that the layout and construction of slaughterhouses and the equipment used therein comply with the rules set out in Annex II.
2. For the purposes of this Regulation, business operators shall, when requested, submit to the competent authority referred to in Article 4 of Regulation (EC) No 853/2004 for each slaughterhouse at least the following:
 - (a) the maximum number of animals per hour for each slaughter line;
 - (b) the categories of animals and weights for which the restraining or stunning equipment available may be used;
 - (c) the maximum capacity for each lairage area.

The competent authority shall assess the information submitted by the operator in accordance with the first subparagraph when approving the slaughterhouse.

3. The following may be adopted in accordance with the procedure referred to in Article 25(2):

- (a) derogations from the rules set out in Annex II for mobile slaughterhouses;
- (b) amendments necessary to adapt Annex II to take account of scientific and technical progress.

Pending the adoption of derogations referred to in point (a) of the first subparagraph, the Member States may establish or maintain national rules applying to mobile slaughterhouses.

4. Community guidelines for the implementation of paragraph 2 of this Article and Annex II may be adopted in accordance with the procedure referred to in Article 25(2).

Article 15

Handling and restraining operations at slaughterhouses

1. Business operators shall ensure that the operational rules for slaughterhouses set out in Annex III are complied with.

2. Business operators shall ensure that all animals that are killed in accordance with Article 4(4) without prior stunning are individually restrained; ruminants shall be mechanically restrained.

Systems restraining bovine animals by inversion or any unnatural position shall not be used except in the case of animals slaughtered in accordance with Article 4(4) and provided that they are fitted with a device that restricts both the lateral and vertical movement of the head of the animal and are adjustable to be adapted to the size of the animal.

3. The following methods of restraint shall be prohibited:

- (a) suspending or hoisting conscious animals;
- (b) mechanical clamping or tying of the legs or feet of animals;
- (c) severing the spinal cord, such as by the use of a puntilla or dagger;
- (d) the use of electric currents to immobilise the animal that do not stun or kill it under controlled circumstances, in particular, any electric current application that does not span the brain.

However, points (a) and (b) shall not apply to the shackles used for poultry.

4. To take account of scientific and technical progress, including an opinion of EFSA; Annex III may be amended in accordance with the procedure referred to in Article 25(2).

5. Community guidelines for the implementation of the rules set out in Annex III may be adopted in accordance with the procedure referred to in Article 25(2).

Article 16

Monitoring procedures at slaughterhouses

1. For the purposes of Article 5, business operators shall put in place and implement appropriate monitoring procedures in slaughterhouses.
2. The monitoring procedures referred to in paragraph 1 of this Article shall describe the way the checks referred to in Article 5 have to be carried out and shall include at least the following:
 - (a) the name of the persons responsible for the monitoring procedure;
 - (b) indicators designed to detect signs of unconsciousness and consciousness or sensibility in the animals; indicators designed to detect the absence of signs of life in the animals slaughtered in accordance with Article 4(4);
 - (c) criteria for determining whether the results shown by the indicators referred to in point (b) are satisfactory;
 - (d) the circumstances and/or the time when the monitoring must take place;
 - (e) the number of animals in each sample to be checked during the monitoring;
 - (f) appropriate procedures to ensure that in the event that the criteria referred to in point (c) are not met, the stunning or killing operations are reviewed in order to identify the causes of any shortcomings and the necessary changes to be made to those operations.
3. Business operators shall put in place a specific monitoring procedure for each slaughter line.
4. The frequency of the checks shall take into account the main risk factors, such as changes regarding the types or the size of animals slaughtered or personnel working patterns and shall be established so as to ensure results with a high level of confidence.
5. For the purpose of paragraphs 1 to 4 of this Article, business operators may use monitoring procedures as described in the guides to good practice referred to in Article 13.
6. Community guidelines concerning monitoring procedures in slaughterhouses may be adopted in accordance with the procedure referred to in Article 25(2).

Article 17

Animal welfare officer

1. Business operators shall designate an animal welfare officer for each slaughterhouse to assist them in ensuring compliance with the rules laid down in this Regulation.
2. The animal welfare officer shall be under the direct authority of the business operator and shall report directly to him or her on matters relating to the welfare of the animals. He or she shall be in a position to require that the slaughterhouse personnel carry out any remedial actions necessary to ensure compliance with the rules laid down in this Regulation.
3. The responsibilities of the animal welfare officer shall be set out in the standard operating procedures of the slaughterhouse and effectively brought to the attention of the personnel concerned.
4. The animal welfare officer shall hold a certificate of competence as referred to in Article 21, issued for all the operations taking place in the slaughterhouses for which he or she is responsible.
5. The animal welfare officer shall keep a record of the action taken to improve animal welfare in the slaughterhouse in which he/she carries out his/her tasks. This record shall be kept for at least one year and shall be made available to the competent authority upon request.
6. Paragraphs 1 to 5 shall not apply to slaughterhouses slaughtering less than 1 000 livestock units of mammals or 150 000 birds or rabbits per year.

For the purpose of the first subparagraph, 'livestock unit' means a standard measurement unit that allows the aggregation of the various categories of livestock in order to enable them to be compared. When applying the first subparagraph, Member States shall use the following conversion rates:

- (a) adult bovine animals within the meaning of Council Regulation (EC) No 1234/2007 of 22 October 2007 establishing a common organisation of agricultural markets and on specific provisions for certain agricultural products (Single CMO Regulation) (11) and equidae: 1 livestock unit;
- (b) other bovine animals: 0,50 livestock unit;
- (c) pigs with a live weight of over 100 kg: 0,20 livestock unit;
- (d) other pigs: 0,15 livestock unit;
- (e) sheep and goats: 0,10 livestock unit;
- (f) lambs, kids and piglets of less than 15 kg live weight: 0,05 livestock unit.

CHAPTER IV

DEPOPULATION AND EMERGENCY KILLING

Article 18

Depopulation

1. The competent authority responsible for a depopulation operation shall establish an action plan to ensure compliance with the rules laid down in this Regulation, before the commencement of the operation.

In particular, the stunning and killing methods planned and the corresponding standard operating procedures for ensuring compliance with the rules laid down in this Regulation shall be included in the contingency plans required under Community law on animal health, on the basis of the hypothesis established in the contingency plan concerning the size and the location of suspected outbreaks.

2. The competent authority shall:

- (a) ensure that such operations are carried out in accordance with the action plan referred to in paragraph 1;
- (b) take any appropriate action to safeguard the welfare of the animals in the best available conditions.

3. For the purposes of this Article and in exceptional circumstances, the competent authority may grant derogations from one or more of the provisions of this Regulation where it considers that compliance is likely to affect human health or significantly slow down the process of eradication of a disease.

4. By 30 June each year, the competent authority referred to in paragraph 1 shall transmit to the Commission a report on the depopulation operations carried out during the previous year and make it publicly available via the Internet.

With regards to each depopulation operation, that report shall include, in particular:

- (a) the reasons for the depopulation;
- (b) the number and the species of animals killed;
- (c) the stunning and killing methods used;
- (d) a description of the difficulties encountered and, where appropriate, solutions found to alleviate or minimise the suffering of the animals concerned;
- (e) any derogation granted in accordance with paragraph 3.

5. Community guidelines for the drawing up and implementation of depopulation action plans may be adopted in accordance with the procedure referred to in Article 25(2).
6. Where appropriate, in order to take account of the information collected by the ADNS, a derogation from the reporting obligation laid down in paragraph 4 of this Article may be adopted in accordance with the procedure referred to in Article 25(2).

Article 19

- i) In the case of emergency killing, the keeper of the animals concerned shall take all the necessary measures to kill the animal as soon as possible.

CHAPTER V

COMPETENT AUTHORITY

Article 20

Scientific support

1. Each Member State shall ensure that sufficient independent scientific support is available to assist the competent authorities, upon their request, by providing:
 - (a) scientific and technical expertise relating to the approval of slaughterhouses as referred to in Article 14(2) and the development of new stunning methods;
 - (b) scientific opinions on the instructions provided by manufacturers on the use and maintenance of restraining and stunning equipment;
 - (c) scientific opinions on guides to good practice developed within its territory for the purposes of this Regulation;
 - (d) recommendations for the purposes of this Regulation, in particular in relation to inspections and audits;
 - (e) opinions on the capacity and suitability of separate bodies and entities to fulfil the requirements laid down in Article 21(2).
2. Scientific support may be provided via a network, subject to all the tasks listed in paragraph 1 being performed with respect to all the relevant activities taking place in the Member States concerned.

For this purpose, each Member State shall identify a single contact point and make it publicly available via the Internet. Such contact point shall be responsible for sharing technical and scientific information and best practices regarding the implementation of this Regulation with its counterparts and the Commission.

Article 21

Certificate of competence

1. For the purposes of Article 7, Member States shall designate the competent authority responsible for:
 - (a) ensuring that training courses are available for personnel involved in killing and related operations;
 - (b) delivering certificates of competence attesting the passing of an independent final examination; the subjects of this examination shall be relevant for the categories of animals concerned and correspond to the operations referred to in Article 7(2) and (3), and to the subjects set out in Annex IV;

(c) approving training programmes of the courses referred to in point (a) and the content and modalities of the examination referred in point (b).

2. The competent authority may delegate the final examination and the issuance of the certificate of competence to a separate body or entity which:

(a) has the expertise, staff and equipment necessary to do so;

(b) is independent and free from any conflict of interest as regards the final examination and the issuance of the certificates of competence.

The competent authority may also delegate the organisation of the training courses to a separate body or entity which has the expertise, staff and equipment necessary to do so.

The details of bodies and entities to which such tasks have been delegated shall be made publicly available by the competent authority via the Internet.

3. Certificates of competence shall indicate for which categories of animals, type of equipment and for which of the operations listed in Article 7(2) or (3) the certificate is valid.

4. Member States shall recognise certificates of competence issued in another Member State.

5. The competent authority may issue temporary certificates of competence provided that:

(a) the applicant is registered in one of the training courses referred to in paragraph 1(a);

(b) the applicant is to work in the presence and under the direct supervision of another person who holds a certificate of competence issued for the specific activity to be undertaken;

(c) the validity of the temporary certificate does not exceed three months; and

(d) the applicant provides a written declaration stating that he/she has not previously been issued another temporary certificate of competence of the same scope or demonstrates to the satisfaction of the competent authority that he/she was unable to take the final examination.

6. Without prejudice to a decision by a judicial authority or by a competent authority prohibiting the handling of animals, certificates of competence, including a temporary certificate of competence, shall only be issued if the applicant provides a written declaration stating that he/she has committed no serious infringement of Community law and/or national law on the protection of animals in the three years preceding the date of application for such a certificate.

7. Member States may recognise qualifications obtained for other purposes as equivalent to certificates of competence for the purposes of this Regulation provided that they have been obtained under conditions equivalent to those laid down in this Article. The competent authority shall make publicly available and keep up to date, via the Internet, a list of qualifications recognised as equivalent to the certificate of competence.

8. Community guidelines for the application of paragraph 1 of this Article may be adopted in accordance with the procedure referred to in Article 25(2).

CHAPTER VI

NON-COMPLIANCE, PENALTIES AND IMPLEMENTING POWERS

Article 22

Non-compliance

1. For the purpose of Article 54 of Regulation (EC) No 882/2004, the competent authority may in particular:

(a) require business operators to amend their standard operating procedures and, in particular, slow down or stop production;

- (b) require business operators to increase the frequency of the checks referred to in Article 5 and amend the monitoring procedures referred to in Article 16;
 - (c) suspend or withdraw certificates of competence issued under this Regulation from a person who no longer shows sufficient competence, knowledge or awareness of his/her tasks to carry out the operations for which the certificate was issued;
 - (d) suspend or withdraw the delegation of power referred to in Article 21(2);
 - (e) require the amendment of the instructions referred to in Article 8 with due regard to the scientific opinions provided pursuant to Article 20(1)(b).
2. When a competent authority suspends or withdraws a certificate of competence, it shall inform the granting competent authority of its decision.

Article 23

Penalties

The Member States shall lay down the rules on penalties applicable to infringements of this Regulation and shall take all measures necessary to ensure that they are implemented. The penalties provided for must be effective, proportionate and dissuasive. The Member States shall notify those provisions to the Commission by 1 January 2013 and shall notify it without delay of any subsequent amendment affecting them.

Article 24

Implementing rules

Any detailed rules necessary for the implementation of this Regulation may be adopted in accordance with the procedure referred to in Article 25(2).

Article 25

Committee procedure

1. The Commission shall be assisted by the Standing Committee on the Food Chain and Animal Health, established by Article 58 of Regulation (EC) No 178/2002.
2. Where reference is made to this paragraph, Articles 5 and 7 of Decision 1999/468/EC shall apply. The period referred to in Article 5(6) of Decision 1999/468/EC shall be set at three months.

CHAPTER VII

FINAL PROVISIONS

Article 26

Stricter national rules

1. This Regulation shall not prevent Member States from maintaining any national rules aimed at ensuring more extensive protection of animals at the time of killing in force at the time of entry into force of this Regulation.
Before 1 January 2013, Member States shall inform the Commission about such national rules. The Commission shall bring them to the attention of the other Member States.
2. Member States may adopt national rules aimed at ensuring more extensive protection of animals at the time of killing than those contained in this Regulation in relation to the following fields:
 - (a) the killing and related operations of animals outside of a slaughterhouse;

(b) the slaughtering and related operations of farmed game as defined in point 1.6 of Annex I to Regulation (EC) No 853/2004, including reindeer;

(c) the slaughtering and related operations of animals in accordance with Article 4(4).

Member States shall notify the Commission of any such national rules. The Commission shall bring them to the attention of the other Member States.

3. Where, on the basis of new scientific evidence, a Member State deems it necessary to take measures aimed at ensuring more extensive protection of animals at the time of killing in relation to the methods of stunning referred to in Annex I, it shall notify the Commission of the envisaged measures. The Commission shall bring them to the attention of the other Member States.

The Commission shall put the matter before the Committee referred to in Article 25(1) within 1 month of the notification and shall, on the basis of an opinion of EFSA and in accordance with the procedure referred to in Article 25(2), approve or reject the national measures involved.

Where the Commission deems it appropriate, it may, on the basis of the approved national measures, propose amendments to Annex I in accordance with Article 4(2).

4. A Member State shall not prohibit or impede the putting into circulation within its territory of products of animal origin derived from animals that have been killed in another Member State on the grounds that the animals concerned have not been killed in accordance with its national rules aimed at a more extensive protection of animals at the time of killing.

ANNEX I

LIST OF STUNNING METHODS AND RELATED SPECIFICATIONS (as referred to in Article 4)

CHAPTER I

Methods

Table 1 — Mechanical methods

No	Name	Description	Conditions of use	Key parameters	Specific requirements for certain methods — Chapter II of this Annex
1	Penetrative captive bolt device	Severe and irreversible damage of the brain provoked by the shock and the penetration of a captive bolt. Simple stunning.	All species. Slaughter, depopulation and other situations.	Position and direction of the shot. Appropriate velocity, exit length and diameter of bolt according to animal size and species. Maximum stun to stick/kill interval(s).	Not applicable.
2	Non-	Severe damage of the	Ruminants,	Position and	Point 1.

	penetrative captive bolt device	brain by the shock of a captive bolt without penetration. Simple stunning.	poultry, rabbits and hares. Slaughter only for ruminants. Slaughter, depopulation and other situations for poultry, rabbits and hares.	direction of the shot. Appropriate velocity, diameter and shape of bolt according to animal size and species. Strength of the cartridge used. Maximum stun to stick/kill interval(s).	
3	Firearm with free projectile	Severe and irreversible damage of the brain provoked by the shock and the penetration of one or more projectiles.	All species. Slaughter, depopulation and other situations.	Position of the shot. Power and calibre of the cartridge. Type of projectile.	Not applicable.
4	Maceration	Immediate crushing of the entire animal.	Chicks up to 72 hours and egg embryos. All situations other than slaughter.	Maximum size of the batch to be introduced. Distance between the blades and speed of rotation. Measure to prevent overloading.	Point 2.
5	Cervical dislocation	Manual or mechanical stretching and twist of the neck provoking cerebral ischemia.	Poultry up to 5 kg live weight. Slaughter, depopulation and other situations.	Not applicable.	Point 3.
6	Percussive blow to the head	Firm and accurate blow to the head provoking severe damage to the brain.	Piglets, lambs, kids, rabbits, hares, fur animals and poultry up to 5 kg live weight. Slaughter, depopulation and other situations.	Force and location of the blow.	Point 3.

Table 2 — Electrical methods

No	Name	Description	Conditions of use	Key parameters	Specific requirements of Chapter II of this Annex
1	Head-only electrical	Exposure of the brain to a current generating a	All species. Slaughter,	Minimum current (A or mA).	Point 4.

	stunning	generalised epileptic form on the electro-encephalogram (EEG). Simple stunning.	depopulation and other situations.	Minimum voltage (V). Maximum frequency (Hz). Minimum time of exposure. Maximum stun-to-stick/kill interval(s). Frequency of calibration of the equipment. Optimisation of the current flow. Prevention of electrical shocks before stunning. Position and contact surface area of electrodes.	
2	Head-to-Body electrical stunning	Exposure of the body to a current generating at the same time a generalised epileptic form on the EEG and the fibrillation or the stopping of the heart. Simple stunning in case of slaughter.	All species. Slaughter, depopulation and other situations.	Minimum current (A or mA). Minimum voltage (V). Maximum frequency (Hz). Minimum time of exposure. Frequency of calibration of the equipment. Optimisation of the current flow. Prevention of electrical shocks before stunning. Position and contact surface area of electrodes. Maximum stun-to-stick interval(s), in case of simple stunning(s).	Point 5.
3	Electrical	Exposure of the entire body	Poultry.	Minimum current	Point 6.

	waterbath	to a current generating a generalised epileptic form on the EEG and possibly the fibrillation or the stopping of the heart through a waterbath. Simple stunning except where frequency is equal to or less than 50 Hz.	Slaughter, depopulation and other situations.	(A or mA). Minimum voltage (V). Maximum frequency (Hz). Frequency of calibration of the equipment. Prevention of electrical shocks before stunning. Minimising pain at shackling. Optimisation of current flow. Maximum shackle duration before the waterbath. Minimum time of exposure for each animal. Immersion of the birds up to the base of the wings. Maximum stun-to-stick/kill interval(s) for frequency over 50 Hz(s).	
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Table 3 — Gas methods

No	Name	Description	Conditions of use	Key parameters	Specific requirements of Chapter II of this Annex
1	Carbon dioxide at high concentration	Direct or progressive exposure of conscious animals to a gas mixture containing more than 40 % carbon dioxide. The method may be used in pits, tunnels, containers or building previously sealed. Simple stunning in case of slaughter of pigs.	Pigs, mustelids, chinchillas, poultry except ducks and geese. Slaughter only for pigs. Other situations than slaughter for poultry mustelids, chinchillas, pigs.	Carbon dioxide concentration. Duration of exposure. Maximum stun-to-stick interval(s) in case of simple stunning. Quality of the gas. Temperature of	Point 7. Point 8.

				the gas.	
2	Carbon dioxide in two phases	Successive exposure of conscious animals to a gas mixture containing up to 40 % of carbon dioxide, followed when animals have lost consciousness, by a higher concentration of carbon dioxide.	Poultry Slaughter, depopulation and other situations	Carbon dioxide concentration. Duration of exposure. Quality of the gas. Temperature of the gas.	Not applicable.
3	Carbon dioxide associated with inert gases	Direct or progressive exposure of conscious animals to a gas mixture containing up to 40 % of carbon dioxide associated with inert gases leading to anoxia. The method may be used in pits, bags, tunnels, containers or in buildings previously sealed. Simple stunning for pigs if the duration of exposure to at least 30 % of carbon dioxide is of less than 7 minutes. Simple stunning for poultry if the overall duration of exposure to at least 30 % of carbon dioxide is of less than 3 minutes.	Pigs and poultry. Slaughter, depopulation and other situations.	Carbon dioxide concentration. Duration of exposure. Maximum stun-to-stick/kill interval(s) in case of simple stunning. Quality of the gas. Temperature of the gas. Oxygen concentration.	Point 8.
4	Inert gases	Direct or progressive exposure of conscious animals to a inert gas mixture such as Argon or Nitrogen leading to anoxia. The method may be used in pits, bags, tunnels, containers or in buildings previously sealed. Simple stunning in case of the slaughter of pigs. Simple stunning for poultry if the duration of exposure to anoxia is of less than 3 minutes.	Pigs and poultry. Slaughter, depopulation and other situations.	Oxygen concentration. Duration of exposure. Quality of the gas. Maximum stun-to-stick/kill interval(s) in case of simple stunning. Temperature of the gas.	Point 8.
5	Carbon monoxide	Exposure of conscious animals to a gas mixture containing more than 4 %	Fur animals, poultry and	Quality of the gas.	Points 9.1, 9.2 and 9.3.

	(pure source)	of carbon monoxide.	piglets. Other situations than slaughter.	Carbon monoxide concentration. Duration of exposure. Temperature of the gas.	
6	Carbon monoxide associated with other gases	Exposure of conscious animals to a gas mixture containing more than 1 % of carbon monoxide associated with other toxic gases.	Fur animals, poultry and piglets. Other situations than slaughter.	Carbon monoxide concentration. Duration of exposure. Temperature of the gas. Filtration of the gas produced from engine.	Point 9.

Table 4 — Other methods

No	Name	Description	Conditions of use	Key parameters	Specific requirements of Chapter II of this Annex
1	Lethal injection	Loss of consciousness and sensibility followed by irreversible death induced by the injection of veterinary medicines.	All species. Other situations than slaughter.	Type of injection. Using approved medicines.	Not applicable.

CHAPTER II

Specific requirements for certain methods

1. *Non-penetrative captive bolt device*

When using this method business operators shall pay attention to avoid the fracture of the skull.

This method shall only be used for ruminants of less than 10 kg of live weight.

2. *Maceration*

This method shall provide instantaneous maceration and immediate death of the animals. The apparatus shall contain rapidly rotating mechanically operated killing blades or expanded polystyrene projections. The capacity of the apparatus shall be sufficient to ensure that all animals are killed instantaneously, even if they are handled in a large number.

3. *Cervical dislocation and percussive blow to the head*

These methods shall not be used as routine methods but only where there are no other methods available for stunning.

These methods shall not be used in slaughterhouses except as a back-up method for stunning.

No person shall kill by manual cervical dislocation or percussive blow to the head more than seventy animals per day.

Manual cervical dislocation shall not be used on animals of more than three kg live weight.

4. *Head-only electrical stunning*

4.1. When using head-only electrical stunning, electrodes shall span the brain of the animal and be adapted to its size.

4.2. Head-only electrical stunning shall be carried out in accordance with the minimum currents set out in Table 1.

Table 1 — Minimum currents for head-only electrical stunning

Category of animals	Bovine animals of 6 months or older	Bovine animals less than 6 months	Animals of ovine and caprine species	Animals of porcine species	Chicken	Turkeys
Minimum current	1,28 A	1,25 A	1,00 A	1,30 A	240 mA	400 mA

5. *Head-to-body electrical stunning*

5.1. Animals of the ovine, caprine and porcine species.

The minimum currents for head-to-body electrical stunning shall be 1 ampere for sheep and goats and 1,30 amperes for pigs.

5.2. Foxes

Electrodes shall be applied to the mouth and rectum with a current of a minimum value of 0,3 amperes and a minimum voltage of 110 volts for at least three seconds.

5.3. Chinchillas

Electrodes shall be applied ear to tail with a current of a minimum value of 0,57 amperes for at least 60 seconds.

6. *Electrical waterbath stunning of poultry*

6.1. Animals shall not be shackled if they are too small for the waterbath stunner or if shackling is likely to induce or increase the pain suffered (such as visibly injured animals). In these cases, they shall be killed by an alternative method.

6.2. Shackles shall be wet before live birds are shackled and exposed to the current. Birds shall be hung by both legs.

6.3. For animals referred to in Table 2, waterbath stunning shall be carried out in accordance with the minimum currents laid down therein, and animals shall be exposed to that current for a minimum duration of at least four seconds.

Table 2 — Electrical requirements for waterbath stunning equipment

(average values per animal)

Frequency (Hz)	Chickens	Turkeys	Ducks and geese	Quails
< 200 Hz	100 mA	250 mA	130 mA	45 mA
From 200 to 400 Hz	150 mA	400 mA	Not permitted	Not permitted
From 400 to 1 500 Hz	200 mA	400 mA	Not permitted	Not permitted

7. Carbon dioxide at high concentration

In the case of pigs, mustelids and chinchillas, the minimum concentration of 80 % of carbon dioxide shall be used.

8. Carbon dioxide, use of inert gases or a combination of those gas mixtures

Under no circumstances shall gases enter into the chamber or the location where animals are to be stunned and killed in a way that it could create burns or excitement by freezing or lack of humidity.

9. Carbon monoxide (pure source or associated with other gases)

9.1. Animals shall be kept under visual supervision at all times.

9.2. They shall be introduced one by one, and it shall be ensured that before the next animal is introduced the previous one is unconscious or dead.

9.3. Animals shall remain in the chamber until they are dead.

9.4. Gas produced by an engine specially adapted for the purpose of killing of animals may be used provided that the person responsible for killing has previously verified that the gas used:

- (a) has been suitably cooled;
- (b) has been sufficiently filtered;
- (c) is free from any irritant component or gas.

The engine shall be tested every year before the killing of animals takes place.

9.5. Animals shall not be placed in the chamber until the minimum concentration of carbon monoxide has been reached.

ANNEX II

LAYOUT, CONSTRUCTION AND EQUIPMENT OF SLAUGHTERHOUSES (as referred to in Article 14)

1. All lairage facilities

1.1. Ventilation systems shall be designed, constructed and maintained so that the welfare of the animals is constantly ensured, taking into account the expected range of weather conditions.

1.2. Where mechanical means of ventilation are required, provision shall be made for an alarm and emergency back-up facilities in the event of breakdown.

1.3. Lairage facilities shall be designed and constructed so as to minimise the risk of injuries to the animals and the occurrence of sudden noises.

1.4. Lairage facilities shall be designed and constructed so as to facilitate the inspection of the animals. Adequate fixed or portable lighting shall be provided to enable the inspection of animals at any time.

2. Lairage facilities for animals not delivered in containers

2.1. Pens, passageways and races shall be designed and constructed to allow:

- (a) the animals to move freely in the required direction using their behavioural characteristics and without distraction;
- (b) pigs or sheep to walk side by side, except in the case of races leading to the restraining equipment.

2.2. Ramps and bridges shall be equipped with lateral protection to ensure that animals cannot fall off.

2.3. The water supply system in pens shall be designed, constructed and maintained so as to allow all animals at all times access to clean water without being injured or limited in their movements.

2.4. When a waiting pen is used, it shall be constructed with a level floor and solid sides, between the holding pens and the race leading to the point of stunning and designed so that animals cannot be trapped or trampled.

2.5. Floors shall be built and maintained in such a way as to minimise the risk of animals slipping, falling or injuring their feet.

2.6. Where slaughterhouses have field lairages without natural shelter or shade, appropriate protection from adverse weather conditions shall be provided. In the absence of such protection, these lairages shall not be used under adverse weather conditions. In the absence of a natural source of water, drinking facilities shall be provided.

3. Restraining equipment and facilities

3.1. Restraining equipment and facilities shall be designed, built and maintained to:

- (a) optimise the application of the stunning or killing method;
- (b) prevent injury or contusions to the animals;
- (c) minimise struggle and vocalisation when animals are restrained;
- (d) minimise the time of restraint.

3.2. For animals of bovine species, restraining boxes used in conjunction with a pneumatic captive bolt shall be fitted with a device that restricts both the lateral and vertical movement of the head of the animal.

4. Electrical stunning equipment (except waterbath stunning equipment)

4.1. Electrical stunning equipment shall be fitted with a device which displays and records the details of the electrical key parameters for each animal stunned. The device shall be placed so as to be clearly visible to the personnel and shall give a clearly visible and audible warning if the duration of exposure falls below the required level. These records shall be kept for at least one year.

4.2. Automatic electrical stunning equipment associated to a restrainer shall deliver a constant current.

5. Waterbath stunning equipment

- 5.1. Shackle lines shall be designed and positioned in such a way that birds suspended on them are clear of any obstruction and that disturbance to the animals is reduced to a minimum.
- 5.2. Shackle lines shall be designed in such a way that birds suspended on them will not remain hung conscious longer than one minute. However ducks, geese and turkeys shall not remain hung conscious longer than two minutes.
- 5.3. The whole length of the shackle line up to the point of entry into the scald tank shall be easily accessible in case animals have to be removed from the slaughter line.
- 5.4. The size and shape of the metal shackles shall be appropriate to the size of the legs of poultry to be slaughtered so that electrical contact can be secured without causing pain.
- 5.5. Waterbath stunning equipment shall be equipped with an electrically insulated entry ramp and designed and maintained so as to prevent overflow of water at the entrance.
- 5.6. The waterbath shall be designed in such a way that the level of immersion of the birds can be easily adapted.
- 5.7. The electrodes in waterbath stunning equipment shall extend the full length of the waterbath. The waterbath shall be designed and maintained in such a way that when the shackles pass over the water they are in continuous contact with the earthed rubbing bar.
- 5.8. A system in contact with the breast of the birds shall be built from the point of shackling until the birds enter the waterbath stunner in order to calm them down.
- 5.9. Access to the waterbath stunning equipment shall be available to allow the bleeding of birds that have been stunned and remain in the waterbath as a result of a breakdown or delay in the line.
- 5.10. Waterbath stunning equipment shall be fitted with a device which displays and records the details of the electrical key parameters used. These records shall be kept for at least one year.

6. *Gas stunning equipment for pigs and poultry*

- 6.1. Gas stunners, including conveyor belts, shall be designed and built to:
 - (a) optimise the application of stunning by gas;
 - (b) prevent injury or contusions to the animals;
 - (c) minimise struggle and vocalisation when animals are restrained.
- 6.2. The gas stunner shall be equipped to measure continuously, display and record the gas concentration and the time of exposure, and to give a clearly visible and audible warning if the concentration of gas falls below the required level. The device shall be placed so as to be clearly visible to the personnel. These records shall be kept for at least one year.
- 6.3. The gas stunner shall be designed in a manner that, even at the maximum permitted throughput, the animals are able to lie down without being stacked on each other.

ANNEX III

OPERATIONAL RULES FOR SLAUGHTERHOUSES (as referred to in Article 15)

1. *The arrival, moving and handling of animals*

- 1.1. The welfare conditions of each consignment of animals shall be systematically assessed by the animal welfare officer or a person reporting directly to the animal welfare officer upon arrival in

order to identify the priorities, in particular by determining which animals have specific welfare needs and the corresponding measures to be taken.

- 1.2. Animals shall be unloaded as quickly as possible after arrival and subsequently slaughtered without undue delay.

Mammals, except rabbits and hares, which are not taken directly upon arrival to the place of slaughter, shall be lairaged.

Animals which have not been slaughtered within 12 hours of their arrival shall be fed, and subsequently given moderate amounts of food at appropriate intervals. In such cases, the animals shall be provided an appropriate amount of bedding or equivalent material which guarantees a level of comfort appropriate to the species and the number of animals concerned. This material shall guarantee an efficient drainage or ensure adequate absorption of urine and faeces.

- 1.3. Containers in which animals are transported shall be kept in good order, handled with care, in particular if they have a perforated or flexible bottom, and:

- (a) shall not be thrown, dropped, or knocked over;
- (b) where possible, shall be loaded and unloaded horizontally and mechanically;

Whenever possible animals shall be unloaded individually.

- 1.4. When containers are put one on top of the other, the necessary precautions shall be taken:

- (a) 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.

- 1.5. For the purpose of slaughter, unweaned animals, lactating dairy animals, females having given birth during the journey or animals delivered in containers shall be given priority over other types of animal. If this is not possible, arrangements shall be made so as to relieve them from their suffering, in particular by:

- (a) milking dairy animals at intervals of not more than 12 hours;
- (b) providing appropriate conditions for suckling and the welfare of the newborn animal in the case of a female having given birth;
- (c) providing water in the case of animals delivered in containers.

- 1.6. Mammals, except rabbits and hares, which are not taken directly to the place of slaughter after being unloaded, shall have drinking water available to them from appropriate facilities at all times.

- 1.7. A steady supply of animals for stunning and killing shall be ensured in order to prevent animal handlers rushing animals from the holding pens.

- 1.8. It shall be prohibited to:

- (a) strike or kick the animals;
- (b) apply pressure to any particularly sensitive part of the body in such a way as to cause animals avoidable pain or suffering;
- (c) lift or drag the animals by the head, ears, horns, legs, tail or fleece, or handle them in such a way as to cause them pain or suffering;

however, the prohibition on lifting animals by their legs shall not apply to poultry, rabbits and hares;

- (d) use prods or other implements with pointed ends;
- (e) twist, crush or break the tails of animals or grasp the eyes of any animal.

1.9. The use of instruments which administer electric shocks shall be avoided as far as possible. In any case, such instruments shall only be used for adult bovine animals and adult pigs which refuse to move, and only when they have room ahead of them in which to move. The shocks shall last no longer than one second, be adequately spaced and shall only be applied to the muscles of the hindquarters. Shocks shall not be used repeatedly if the animal fails to respond.

1.10. Animals shall not be tied by the horns, antlers or nose rings and their legs shall not be tied together. When animals need to be tied, ropes, tethers or other means used shall be:

- (a) strong enough not to break;
- (b) such as to allow the animals, if necessary, to lie down and to eat and drink;
- (c) designed in such a way as to eliminate any danger of strangulation or injury, and so as to allow animals to be quickly released.

1.11. Animals which are unable to walk shall not be dragged to the place of slaughter, but shall be killed where they lie.

2. Additional rules for mammals in lairage (except for rabbits and hares)

2.1. Each animal shall have enough space to stand up, lie down and, except for cattle kept individually, turn around.

2.2. Animals shall be kept securely in the lairage and care shall be taken to prevent them from escaping and to protect them from predators.

2.3. For each pen it shall be indicated with a visible sign the date and time of arrival and, except for cattle kept individually, the maximum number of animals to be kept.

2.4. Every day that the slaughterhouse operates, before any animal arrives, isolation pens for animals that require specific care shall be prepared and kept ready for immediate use.

2.5. The condition and state of health of the animals in a lairage shall be regularly inspected by the animal welfare officer or a person having appropriate competence.

3. Bleeding of animals

3.1. Where one person is responsible for the stunning, shackling, hoisting and bleeding of animals, that person shall carry out all those operations consecutively on one animal before carrying out any of them on another animal.

3.2. In case of simple stunning or slaughter in accordance with Article 4(4), the two carotid arteries or the vessels from which they arise shall be systematically severed. Electrical stimulation shall only be performed once the unconsciousness of the animal has been verified. Further dressing or scalding shall only be performed once the absence of signs of life of the animal has been verified.

3.3. Birds shall not be slaughtered by means of automatic neck cutters unless it can be ascertained whether or not the neck cutters have effectively severed both blood vessels. When neck cutters have not been effective the bird shall be slaughtered immediately.

ANNEX IV

CORRESPONDENCE BETWEEN ACTIVITIES AND REQUIREMENTS FOR EXAMINATION OF COMPETENCE (as referred to in Article 21)

Slaughter operations listed in Article 7(2)	Subjects for examination of competence
All operations listed in Article 7(2)(a) to (g).	Animal behaviour, animal suffering, consciousness and sensibility, stress in animals.
(a) the handling and care of animals before they are restrained;	Practical aspects of handling and restraining animals. Knowledge of manufacturers' instructions on the type of restraint equipments used in case of mechanical restraint
(b) the restraint of animals for the purpose of stunning or killing;	
(c) the stunning of animals;	Practical aspects of stunning techniques and knowledge of manufacturers' instructions on the type of stunning equipments used. Back-up stunning and/or killing methods. Basic maintenance and cleaning of stunning and/or killing equipment.
(d) the assessment of effective stunning;	Monitoring the effectiveness of stunning. Back-up stunning and/or killing methods.
(e) the shackling or hoisting of live animals;	Practical aspects of handling and restraining animals. Monitoring the effectiveness of stunning.
(f) the bleeding of live animals;	Monitoring the effectiveness of stunning and the absence of signs of life. Back-up stunning and/or killing methods. Appropriate use and maintenance of bleeding knives.
(g) the slaughtering in accordance with Article 4(4);	Appropriate use and maintenance of bleeding knives. Monitoring the absence of signs of life.

Killing operations listed in Article 7(3)	Subjects for examination of competence
the killing of fur animals.	Practical aspects of handling and restraining animals. Practical aspects of stunning techniques and knowledge of manufacturers' instructions on stunning equipments. Back-up stunning and/or killing methods. Monitoring the effectiveness of stunning and confirmation of death. Basic maintenance and cleaning of stunning and/or killing equipment.

10.6 CIWF (UK) letter on EU legislation on Welfare of Dairy cows



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6 January 2014

Dear Minister

EU Legislation on Welfare of Dairy Cows

The European Commission has recently stated that, although there is no species-specific EU Directive on the welfare of dairy cows, their welfare is covered by two important, connected pieces of legislation:

- Council Directive 98/58 concerning the protection of animals kept for farming purposes
- the Recommendation concerning cattle adopted by the Standing Committee of the European Convention for the Protection of Animals Kept for Farming Purposes.ⁱ The Commission points out that since the EU has ratified the European Convention, the Recommendation concerning cattle “is legally binding to the Member States. The provisions laid down in the recommendation shall thus be applied on dairy holdings within the EU.”

Directive 98/58

Article 3 sets out the Directive’s core principle. It requires Member States to “make provision to ensure that the owners or keepers take all reasonable steps to ensure the welfare of animals under their care and to ensure that those animals are not caused any unnecessary pain, suffering or injury”.

This places the following legal duties on Member States and, in turn on the owners and keepers of dairy cows. Member States must ensure that owners and keepers take all reasonable steps to:

1. ensure the welfare of dairy cows under their care
2. ensure that those dairy cows are not caused any unnecessary pain
3. ensure that those dairy cows are not caused any unnecessary suffering
4. ensure that those dairy cows are not caused any unnecessary injury.

Scientific research helps us understand what should be taken into account when assessing each of these factors. The Commission has stressed that “the necessary scientific assessment of dairy cow welfare has been performed by the European Food Safety Authority (EFSA) on request by the Commission and these data have been published in several opinions on dairy cows”. In my view EFSA’s Scientific Report and Scientific Opinions on dairy welfare are particularly helpful.ⁱⁱ

Article 3 is a demanding provision in that it requires owners and keepers not just to take reasonable steps but to take “all” reasonable steps. Further, owners and keepers must “ensure” dairy cows’ welfare and “ensure” that they are not caused any unnecessary pain, suffering or injury.

Recommendation concerning cattle adopted by the Standing Committee of the European Convention (the ‘Recommendation’)

The Commission recognises that the Recommendations made under the European Convention are a binding part of EU law where they use the word “shall” (rather than “should”).ⁱⁱⁱ

However, even the Recommendations that use “should” are relevant in that they help interpret Article 3 of Directive 98/58. Farmers who ignore a Recommendation that uses “should” may find it difficult to demonstrate that they have taken all reasonable steps to ensure the welfare of cows under their care or to ensure that they are not caused unnecessary pain, suffering or injury.

The below Annex examines how Directive 98/58 and the Recommendation apply to a number of common dairy welfare concerns.

I would be grateful if I could have a meeting with you or your officials to discuss these matters

Yours sincerely



Peter Stevenson
Chief Policy Advisor

Annex: Legal issues raised by certain common dairy welfare problems

Lameness: EFSA identifies foot and leg disorders as the major welfare problem for dairy cows. EFSA notes that there has been no reduction in the prevalence of lameness in the last 20 years. EFSA points out that “Most lame cows are in pain and have greater difficulty in coping with their living conditions than non-lame cows because of the effects of the foot or leg disorder on walking, lying comfort, standing up and avoidance behaviour. Lame cows are more likely to become subordinate...and to develop mastitis and metabolic disease”.

In light of the impact of lameness on cow welfare, it is clear that under Article 3 of Directive 98/58 farmers must take “all reasonable steps” to (i) prevent and (ii) treat lameness at both the individual and herd level.

EFSA and the European Animal Welfare Platform^{iv} have identified the following as being among the factors to be considered in trying to reduce the incidence of lameness:

- implementation of a lameness prevention programme including locomotion scoring, regular foot bathing and hoof trimming
- cleanliness under-foot: passages and feeding areas must be kept free from excess slurry
- flooring
- zero-grazing systems entail an increased risk of lameness

- lameness is much more of a problem in cubicle systems and tie-stalls than in straw yards or at pasture
- housing conditions: in cubicle systems inadequate floor in the walking area, poor cubicle design and inadequate bedding all contribute to lameness. In cubicle houses there should be at least as many cubicles as there are cows in the house
- larger space allowance, in the walking area as well as the lying area, is beneficial in reducing the occurrence of lameness
- feed composition: high cereal diets can increase the prevalence of certain foot conditions.

A farmer who is not addressing the above points cannot be said to be taking “all reasonable steps” to keep the incidence of lameness to a minimum.

Paragraph 4 of the Annex to Directive 98/58 provides that “Any animal which appears to be ill or injured must be cared for appropriately without delay and, where an animal does not respond to such care, veterinary advice must be obtained as soon as possible. Where necessary sick or injured animals shall be isolated in suitable accommodation with, where appropriate, dry comfortable bedding.”

The Recommendation also contains the following provisions that have a bearing on lameness:

- Article 3.1 provides that “All animals shall be thoroughly inspected at least once a day”
- Article 4.1 states that “At the inspection it must be borne in mind that signs of ill health include ... lameness”.
- Article 4.2 provides that “If animals are apparently not in good health, or if they are showing obvious signs of adverse behavioural changes, the person responsible for them shall take steps without delay to establish the cause and shall take appropriate remedial action. If the immediate action taken by the person responsible is not effective either a veterinarian must be consulted or, if necessary, other expert advice must be sought.”

It is clear from these provisions that farmers must:

- be proactive in detecting lameness
- take effective remedial action without delay.

Mastitis: Mastitis is a common, painful disease. It is a major welfare problem for cows. As with lameness, it is clear that under Article 3 of Directive 98/58 farmers must take “all reasonable steps” to (i) prevent and (ii) treat mastitis at both the individual and herd level.

EFSA states that the prevalence of mastitis should be reduced through: treatment of clinical and subclinical disease, identification and elimination of carrier cows, prevention of transmission of infection from cow to cow or through the environment, and improvement of the immune system by minimising stress factors and by a controlled and nutritionally-balanced feed intake.

Hygienic teat management, regular testing and maintenance of milking machines and the provision of a clean environment for standing (e.g. feeding area and alleyways) and lying are also important components of plans for controlling mastitis. Pain management should be part of the treatment of mastitis.

A farmer who is not addressing the above points cannot be said to be taking “all reasonable steps” to keep the incidence of mastitis to a minimum.

Paragraph 4 of the Annex to Directive 98/58 and Articles 3.1 and 4.2 of the Recommendation (which are referred to in the above section on lameness) are also relevant to mastitis.

It is clear from these provisions that farmers must:

- be proactive in detecting mastitis
- take effective remedial action without delay.

Cubicles: A number of welfare problems can arise in cubicles. EFSA concludes that if cubicles are too narrow, movement difficulties and teat trampling may occur. The body length of cows has increased over the years; some older cubicles are too short for today’s large cows. This forces them to lie or stand with their back legs in the passageway. If the lying area in the cubicles does not provide a suitable surface cows can suffer sores and abrasions.

Cows go through a sequence of movements for lying down and getting up, which may not be possible or may be difficult and protracted if cubicle design is poor. In some cases cows may collide with the housing equipment during lying down. Cubicles should be designed in such a way that the forward movement of the body is not thwarted when changing position from lying to standing and vice versa.

EFSA has recommended that cubicles should be modified or replaced if repeated injuries occur because of poor design.

A breach of Article 3 of Directive 98/58 may be involved if any of the above factors result in compromised welfare or in pain, suffering or injury. In addition, there may be a breach of Article 6.1 of the Recommendation which provides that “the design, construction and maintenance of buildings and equipment for cattle must be such that they ... limit the risk of disease or traumatic injuries to the animals”.

Insufficient cubicles: EFSA concludes that when there is not a cubicle for every cow in a cubicle house, reduced lying time and aggression with associated poor welfare are more likely to occur. It may also lead to increased lameness and mastitis. Accordingly, EFSA recommends that in cubicle houses there should be at least as many cubicles as there are cows in the house. A breach of Article 3 of Directive 98/58 may be involved if a failure to provide sufficient cubicles results in compromised welfare or in pain, suffering or injury.

Flooring: EFSA points out that flooring can have a significant impact on claw and leg disorders. In cubicle houses, inappropriate flooring in passageways and in feeding and milking areas poses a large risk for welfare. Floors should be non-slip. Smooth concrete floors must be grooved or treated with a non-slip coating; rough floors should not cause foot damage. EFSA concludes that standing and walking for prolonged periods on concrete floors or floors that are wet or covered in slurry cause severe foot disorders. Floors should be clean and dry.

A breach of Article 3 of Directive 98/58 may be involved if inappropriate flooring results in compromised welfare or in pain, suffering or injury. In addition, such flooring may breach Article 6.4 of the Recommendation which provides that “Floors shall be non slippery, well drained in order to evacuate droppings and spills of water and such as to avoid discomfort, distress or traumatic injury to the animals. Where slatted or other perforated floors are used they shall be suitable for the size and weight of the animals housed and form a rigid, even and stable surface.”

Bedding: EFSA recommends that:

- cows kept in buildings should be provided with an area bedded with sufficient, dry, compressible, non-slippery material that does not lead to skin lesions.
- hock, knee and skin lesions should be used as an indicator of the quality of bedding.

A breach of Article 3 of Directive 98/58 may be involved if inadequate bedding results in compromised welfare or in pain, suffering or injury.

Injuries: Under Article 3 of Directive 98/58 farmers must take all reasonable steps to prevent injuries, swellings and lesions such as hock damage and to treat them when they do occur. Article 6.1 of the Recommendation provides that design, construction and maintenance of buildings and equipment must be such that they limit the risk of traumatic injuries. Article 6.4 stipulates that floors shall be such as to avoid traumatic injuries.

Cleanliness: EFSA recommends that the environment of the cow should be clean and dry. Article 9.1 of the Recommendation provides that animals “should be maintained in a clean condition”.

Access to outdoors: Paragraph 5 of Appendix B to the Recommendation provides that cows and heifers “should be given the opportunity to go outside whenever possible and in summertime preferably every day”.

The fact that Paragraph 5 uses “should” does not mean that it can be ignored. Good faith is a core principle of international law. Good faith requires contracting parties to a Convention to respect its provisions. It is not good faith to try to side-step certain provisions by arguing that the use of the word “should” renders a provision non-mandatory. Even if it is not mandatory, the word “should” nonetheless entails an obligation to make a good faith attempt to give effect to a provision.

Moreover, in the *Grimaldi* case (**Case C-322/88**) the European Court of Justice ruled that recommendations cannot be regarded as having no legal effect at all. The Court went on to say that national courts are bound to take them into consideration, in particular where they cast light on the interpretation of other provisions of national or Community law.

Paragraph 5 of Appendix B does indeed cast light on Article 3 of Directive 98/58. EFSA has concluded that “If dairy cows are not kept on pasture for parts of the year, i.e. they are permanently on a zero-grazing system, there is an increased risk of lameness, hoof problems, teat tramp, mastitis, metritis, dystocia, ketosis, retained placenta and some bacterial infections”. Farmers who do not keep cows on pasture for parts of the year and whose animals show increased levels of these health problems may be in breach of Article 3 of Directive 98/58.

¹ Recommendation concerning cattle adopted on 21 October 1988 by the Standing Committee of the European Convention for the protection of animals kept for farming purposes.

http://www.coe.int/t/e/legal_affairs/legal_co-operation/biological_safety_and_use_of_animals/farming/Rec%20cattle%20E.asp#TopOfPage

¹ Scientific Opinion of the Panel on Animal Health and Welfare on a request from European Commission on the overall effects of farming systems on dairy cow welfare and disease. *The EFSA Journal* (2009) 1143, 1-38

<http://www.efsa.europa.eu/en/efsajournal/doc/1143.pdf>

Scientific Opinion of the Panel on Animal Health and Welfare on a request from the Commission on the risk assessment of the impact of housing, nutrition and feeding, management and genetic selection on leg and locomotion problems in dairy cows. *The EFSA Journal* (2009) 1142, 1-57

<http://www.efsa.europa.eu/en/efsajournal/doc/1142.pdf>

Scientific Opinion of the Panel on Animal Health and Welfare on a request from the Commission on the risk assessment of the impact of housing, nutrition and feeding, management and genetic selection on udder problems in dairy cows. *The EFSA Journal* (2009) 1141, 1-60

<http://www.efsa.europa.eu/en/efsajournal/doc/1141.pdf>

Scientific Opinion of the Panel on Animal Health and Welfare on a request from the Commission on the risk assessment of the impact of housing, nutrition and feeding, management and genetic selection on metabolic and reproductive problems in dairy cows. *The EFSA Journal* (2009) 1140, 1-75

<http://www.efsa.europa.eu/en/efsajournal/doc/1140.pdf>

Scientific Opinion of the Panel on Animal Health and Welfare on a request from the Commission on the risk assessment of the impact of housing, nutrition and feeding, management and genetic selection on behaviour, fear and pain problems in dairy cows. *The EFSA Journal* (2009) 1139, 1-68

<http://www.efsa.europa.eu/en/efsajournal/doc/1139.pdf>

Scientific report of EFSA prepared by the Animal Health and Animal Welfare Unit on the effects of farming systems on dairy cow welfare and disease. *Annex to the EFSA Journal* (2009) 1143, 1-38

<http://www.efsa.europa.eu/en/efsajournal/doc/1143r.pdf>

EFSA Panel on Animal Health and Welfare (AHAW) Scientific Opinion on the use of animal-based measures to assess welfare of dairy cows. *EFSA Journal* 2012; 10(1):2554. [81 pp.]

doi:10.2903/j.efsa.2012.2554. <http://www.efsa.europa.eu/en/efsajournal/doc/2554.pdf>

¹ Commission staff working document accompanying the EU Strategy for the Protection and Welfare of Animals 2012-2015. <http://www.ipex.eu/IPEXL-WEB/dossier/document/SEC20120055.do>

¹ European Animal Welfare Platform: beef and dairy production strategic approach documents.

<http://www.animalwelfareplatform.eu/documents/EAWPStrategicApproachDocumentsBeefandDairyProduction.pdf>