



Naturland

NATURLAND STANDARDS

PROCESSING

Supplement for transport and slaughtering

Version 05/2023

XVII. Processing standards for transport and slaughtering

The processing standards for transport and slaughtering are supplementary to the Naturland standards “Processing – General Section”, including the appendices.

These are likewise binding on all processing standards for specific groups of products and consequently must be observed in transport and slaughtering.

1. Area of application

The area of application of these standards covers the transport, the necessary measures to be taken prior to slaughtering, and prerequisites for and the process of slaughtering animals¹, the meat of which is to be marketed employing the Naturland logo or with reference to Naturland or to the Naturland standards. The area of application ends with the carcass being removed from the cold storage rooms.

All processing stages following slaughtering are governed by Part D. I. (Processing standards for meat and meat products).

In Germany, all currently valid legal provisions with respect to transport and slaughtering remain unaffected by these standards. In other countries (i. e. except for Germany) the contents are to be implemented with no change in the substance, where applicable by way of comparable law in the respective country.

2. Principle

Special attention is to be paid to the animals' welfare at every stage from loading to slaughtering. In particular stress, pain and fear in the animals are to be prevented or kept to a minimum wherever possible and the treatment of the animals as well as their loading and unloading must be as gentle as possible at all times. Every animal and every group of animals must be identifiable during the transport and slaughtering processes at all times.

3. Transport regulations

3.1 General transport regulations

Preference is to be given to transporting carcasses rather than live animals.

The distances between the farm and the slaughterhouse are to be kept short and preference is to be given to local slaughterhouses. Transportation time² should be no longer than 4 hours and the distance covered no more than 200 km. The transportation time may not exceed 8 hours. Exceptions to this rule may be granted upon application in individual cases (e. g. if no slaughterhouse corresponding to the Naturland standards can be reached within this distance or time period).

All appointed agents responsible for the transport³ are required to be able to produce a valid certificate of competence⁴.

The customer of the transport is responsible for ensuring

- that the carrier⁵ is able to produce a **declaration of commitment** to compliance with the Naturland standards on the transport of animals destined for slaughter. The declaration can be downloaded from the Naturland website (www.naturland.de).
- that an **accompanying document** be completed for every journey⁶ which specifies all the relevant times (start of loading, departure from farm/farms, arrival at slaughterhouse, end of unloading) besides the species and number of animals loaded. If any unforeseen problems in relation to the transportation occur, particularly incidents having an influence on the transportation time and/or dead or injured animals, these have to be shown in the accompanying document. This document is to be handed to the slaughterhouse, which then records its receipt.

The use of painful prods is forbidden.

Before loading, the animals have to be given sufficient water to drink. Commercial carriers must be able to provide an emergency plan⁷ describing procedures to be adopted in the case of accidents, or if the round takes longer than expected or if extreme weather conditions occur. It is recommended that the farmer, too, have such an emergency plan to hand. Account should be taken of the different requirements of the various species of animal and of the climatic conditions. In hot weather, for example, long standing periods are to be avoided,

¹ Except for fish. The slaughtering of fish is covered in the Naturland Standards for Organic Aquaculture.

the vehicle to be parked in the shade during any statutory breaks, and the animals to be given sufficient water to drink.

3.2 Requirements of the equipment used in vehicles used to transport livestock

3.2.1 General requirements

The vehicle must have equipment suitable for loading and unloading. In the case of animals which are not transported in crates, this also means bedding material, sideguards, strong, flat or adjustable ramps (at least 1.2 m wide) or loading flaps with only slight inclination or a hydraulic lifting platform. Where large animals are to be transported, there must be an escape flap in the front part of the vehicle.

The animals must have enough space. If transportation is expected to last longer than 4 hours or outside temperatures to rise above 24 °C, the extended space requirements stipulated in Appendix 1.1 are to be observed. The floor of the vehicle must be strewn with bedding material which prevents the animals slipping. In the case of the transport of poultry in poultry crates, the following applies: there is no need for bedding material if the floor of the crate is non-slip and permeable; the extended space requirements need not be complied with at low temperatures⁸ if there is any risk of the poultry suffering from hypothermia despite the implementation of standard protective methods (e. g. covering the sides of the transport vehicle without interrupting the supply of fresh air).

Animals from different farms are to be kept separate from one another by means of suitable fixtures and everything possible should be done to ensure that animals from different sections do not get mixed up. Partitions must be firm and stable.

The animals must be protected from adverse weather conditions. The ventilation and the air space is to be adapted to suit the transport conditions and the respective species of animal; the air supply must not be impeded.

Platforms must be so constructed that the safety of the animals is guaranteed. There must be no sharp edges, protrusions, corners, protruding hooks or similar features in the cargo areas.

Adult cattle must have at least 20 cm space above their heads when lifted when they are standing, whilst sheep and pigs must have at least 30 cm space above their heads when they are standing in a normal position.

3.2.2 Provisions for individual species

Lactating animals must be milked before loading if it is expected that it will not be slaughtered before the normal next milking time.

In the case of **pigs**, they should if possible not be fed in the last few hours before transportation.

In the case of **poultry**, the following is to be observed:

- Due care should be exercised when carrying and especially when placing animals in crates to avoid inflicting any injuries. Throwing animals is prohibited. Chicken harvesters are permissible if used correctly. If catching teams are employed, the catching and loading of the birds must be monitored and regulated by the works manager or his or her deputy and the process documented.
- If outer temperatures are greater than 24°C, the truck must be aerated during loading by means of mobile ventilators. Under such conditions, a truck loaded with poultry may only be parked outside the slaughterhouse if additional ventilation of the cargo area is guaranteed.
- If the outer temperature is below 10°C, the movement of the air in the cargo area must be reduced by means of tarpaulin or net windbreakers. This must, however, not impede ventilation.

² The transport of mammals commences with the loading of the first animal on the farm and ends with the unloading of the last animal at the slaughterhouse; in the case of poultry, the loading and unloading time are not included in the transportation time.

³ This includes loading and unloading.

⁴ In the case of farmers who transport the livestock themselves over a maximum distance of 65 km, the expertise acquired in professional handling with their animals suffices.

⁵ If the farmer him- or herself transports the animals, he or she is obliged to complete the corresponding declaration of commitment and to keep it with the inspection documents/farm documents. If one and the same carrier repeatedly or regularly is appointed, the carrier is only required to complete the declaration of commitment once.

⁶ Excluded are self-transport by the farmer over a maximum distance of 50 km. A sample of an accompanying document for transport can be downloaded from the Naturland website (www.naturland.de). If the relevant information can be found on other paperwork, e. g. on a delivery note, then this latter form of documentation is permissible.

⁷ A sample emergency plan can be downloaded from the Naturland website (www.naturland.de).

⁸ according to the Naturland specifications

- The temperature in the transport boxes should be measured and recorded automatically. The measurements should be taken in the front and central areas of the carrier in the summer and in the central and rear areas of the carrier in the winter.

4. Provisions governing slaughtering

4.1 General provisions

The slaughterhouse adheres to a quality management system (including the HACCP concept). This includes standard operating instructions or guides to good practice, in which each activity performed throughout the slaughtering procedure is represented; adherence to these instructions is recorded and checked.

Naturland may impose the condition that the slaughterhouse be obliged to accept external professional advice with respect to housing, herding, stunning and slaughtering, if required.

A person qualified in and responsible for animal welfare and a deputy are to be appointed for every slaughterhouse. This animal welfare officer monitors every stage, from unloading to proper bleeding. He or she has the power to give directions and attends further education courses every year to acquire the latest knowledge.

Every person who is responsible for dealing with live animals at the slaughterhouse is in possession of a certificate of competence. They receive in-house training by the animal welfare officer with particular emphasis on affairs pertaining to animal welfare; the training courses are revised to incorporate the latest information. Courses of instruction on the more stringent requirements when handling organic animals in the slaughtering process are also held regularly.

If there is a disruption at the slaughterhouse or it ceases operations temporarily, there is an emergency plan⁹ which in particular gives details on how the animals are to be housed and taken care of in order to avoid them having to spend additional time waiting on the vehicles; this plan also determines how the animals might possibly be stunned and slaughtered by other means. If such an event occurs, it is to be documented.

Planning before the actual slaughter is to be conceived in such a way that the waiting periods at the slaughterhouse are kept to a minimum, always observing the necessary rest periods.

If pregnancy is determined at slaughter, the foetuses must be stunned and killed in a professional manner. Any cases of pregnancy past 50% of term are to be documented; both the farmer and Naturland are to be informed of them by the slaughterhouse.

Naturland can also arrange for unannounced spot checks to be made in addition to regular inspection, in order to ensure that these standards are adhered to and implemented.

4.2 Deliver and transfer to the slaughterhouse

Upon arrival at the slaughterhouse, the animals are to be unloaded promptly, and wherever possible within an hour.

Delivery and unloading bays should be roofed over and provide shelter from bad weather.

Unloading should be done at ground level. Ramps and gangways must be non-slip and be equipped with side guards; the side-screens should be completely closed off (this is obligatory in the case of pigs) and there should be no changes in the structure of the walls or floors and no floor-level gutters.

Animals which are not in transport boxes are to be unloaded in such a manner that they can leave the vehicle in a manner corresponding to their natural movement patterns.

Poultry crates are to be unloaded with corresponding care. They must not be tipped so far that the birds fall down and/or on top of each other.

Lighting conditions should take consideration of the fact that the animals are being driven from the dark into the light.

The animals are to be driven calmly, gently and without the use of force, making best use of their herd instinct. Prods may be used to guide the animals. The use of electric prods is prohibited.

Injured animals or animals which can no longer walk must be stunned and killed immediately upon arrival. Operational stunning equipment must be available for this purpose in the delivery bay. If animals are delivered of which the condition of health, nutrition or care give rise to the conclusion that they were kept or transported under dubious conditions, this is to be documented and Naturland to be informed by the slaughterhouse.

4.3 Housing and rest periods before slaughtering

Wherever possible, cattle are to be led to slaughter immediately or housed in a suitable manner.

⁹ Exceptions are made for operations classed as small-scale slaughterhouses.

Pigs demonstrating resting behaviour are led to slaughter after a rest phase of at least an hour after unloading. If animals are not slaughtered immediately upon arrival, they have to be housed in an appropriate manner. A sufficient number of pens large enough to accommodate them are to be available (ref. minimum dimensions in Appendix 1.2).

Animals which differ from each other in species, gender, age or origin, which could lead to them harming each other, must be kept separately. In the case of pigs, screens preventing them from being able to see the neighbouring group (e. g. in the form of closed sideguards) are required; in the case of other species, this should also be an option wherever possible.

Constructional and/or organisational measures should be taken to prevent cattle from mounting each other. It must be possible to have immediate access to the animals and to take the appropriate measures.

Housing in pens solely with slatted floors or similar constructions is not permissible if the animals are to be kept there for over 6 hours. The lying areas must be non-slip¹⁰. It must be ensured that every animal is properly taken care of. To this end, the pens must be provided with an adequate number of operational drinking troughs. If the animals are to be housed for a period of over 6 hours, they are to be fed as appropriate, so suitable fodder must be kept available. Every animal is allocated its own feeding place.

Sufficient protection from adverse weather conditions and appropriate ventilation (including alarm systems to warn of operational malfunctions) are to be guaranteed. The general condition and state of health of the animals is to be checked each evening and morning.

The facility must provide suitable thermoregulation systems of adequate power and which can be employed whenever needed in a manner designed to meet the particular requirements of each animal species, e. g. litter material such as straw, sprinkler systems or fans if it gets too hot and heaters when it is cold.

Care should be taken to keep the noise level and concentration of noxious gases as low as possible. Noise insulation should be installed between the waiting and slaughtering area; the slaughtering area has to be screened off.

4.4 Slaughter process

4.4.1 Stunning

All animals are to be stunned before slaughter in a careful and professional manner. Slaughter without prior stunning is prohibited¹¹. Preference is to be given to irreversible stunning methods.

The stunning area should be as quiet as possible. The animals are not to be unduly alarmed by avoidable loud noises, drafts, bright lights or similar factors.

Every animal – with the exception of stunning by gas or waterbath stunning - must be stunned separately. Stunning several animals ahead of actual need is not permissible.

Every animal is to be checked to see if stunning was successful. If stunning was insufficient, it must be repeated immediately. Working back-up stunning equipment ready for immediate use must be on hand.

Stunning devices and systems are tested and assessed (including documentation) every day before work commences and at least once a year according to a technical maintenance plan. If any anomalies occur, they must be tested and assessed immediately. The equipment has to be checked and cleaned several times a day. All technical data applicable to the stunning method and the slaughtering operation are spot-checked and documented every day to a reasonable degree.

The plants must be constructed in such a way that when downstream slaughtering facilities are stopped, the herding, stunning and bleeding units can be emptied so that there are no more animals in them.

When animals are stunned electrically, the current must first pass through the brain (or at least simultaneously with the body); the electrode setting must be adapted to the animal's size. A device indicating the electrical voltage and current applied in stunning is to hand. Electrical stunning devices indicate the end of the minimum period of current flow by giving an acoustic, optical or mechanical signal. The same applies to a faulty stunning operation. The control and error displays must be in the field of vision of the person performing the stunning operation.

Plants using gas to stun animals must have a viewing window so that the animals can be observed from outside. It must also be possible to open the unit in several places so that operators can intervene in the case of defects. When a defect occurs, it must be possible to fill the unit quickly with atmospheric air.

When the unit is in operation, the concentrations of gas and exposure times in the various gas phases are continuously checked and recorded. If the concentration of gas falls or if there are interruptions in the gas flow, this must be signalled optically and acoustically, and also when the plant is loaded.

¹⁰ If the animal is kept over 12 hours in the pen, it must be provided with sufficient bedding.

¹¹ The only cases where stunning is not required are when an animal is shot out in the field in such a way as to cause immediate death.

Whatever the stunning method, the number of stunning errors and repeated stunning operations has to be recorded every day, and the causes determined and removed.

Every day the animal welfare officer checks and records the stunning operation performed on slaughtered animals, the number being determined individually for each facility. If deficiencies in the stunning operation are determined, the causes are to be defined and appropriate corrective measures introduced.

4.4.1.1 Cattle and small ruminants

Cattle are restrained in such a way as to allow stunning by means of a captive bolt in a skilled manner. To do so, a device must be installed to enable fixation of the head. The captive bolt pistol is to be held vertically and firmly to the frontal bone.

Where horned sheep or goats are stunned, the pistol is held to the back of the head. In polled sheep, the pistol is held to the skull from above.

If woolly sheep are to be electrically stunned, the electrodes need to be fitted with pins. These must be cleaned after stunning 5 animals (ref. minimum currents and minimum current flow in Appendix 1.3).

4.4.1.2 Pigs

When pigs are stunned electrically, the voltage, current flow, current frequency and size of the tongs must be such as to ensure that the stunning is performed in a skilled manner (ref. minimum voltage and current flow in Appendix 1.3).

In automatic electrical stunning plants, only those animals of the size for which the plant is designed may be herded in.

Entry to the gas stunning chamber must be at ground level, with no thresholds or inclines, and the cradles must not be loaded with more animals than prescribed by the manufacturer. If pigs are not sufficiently stunned by the gas, meaning that stunning needs to be repeated, then this is to be done by capture bolt.

4.4.1.3 Poultry

Gas stunning is the method to be preferred for hens, broilers and turkeys rather than waterbath stunning wherever possible. If several birds are stunned simultaneously using the gas or waterbath stunning methods, the stunning protocol must be checked for compliance with the number of animals allowed to be stunned daily, a specific figure being determined for each individual slaughterhouse. The source of error of any deviancies must be determined and remedied.

Where waterbath stunning is employed, the shackles must be clean, moistened with water before submersion and adapted to the size of the birds.

The birds are to be shackled using both hands, one by one, calmly and carefully, to avoid inflicting any injuries. The shackled birds should all be of the same size so that all the birds' heads are totally submerged in the waterbath up to the shoulder girdle. Submersion in the waterbath is to be performed speedily after shackling (ref. Appendix 1.4). Injured birds may not be shackled but must instead be stunned and killed separately. At suitable intervals the stunning currents, voltage and frequency and possible deviancies must be recorded. The source of error of any deviancies must be determined and remedied. If the conveyor belt has to stop running for more than three minutes, the birds hanging in the shackles must be removed from them speedily.

In the case of head-only electrical stunning with tongs or wall-mounted devices, every bird must be restrained professionally; the electrodes must be clean and are applied on both sides of the head. The devices must be equipped to give an optical or acoustic signal indicating the end of the current flow and with a display showing voltage and current as well as a warning device which emits a signal if the current intensity is faulty (ref. minimum currents and current flow in Appendix 1.4).

If stunning is to be done by capture bolt or a blow to the head, every bird must be expertly restrained. When giving a blow to the head, this must be done with a percussive blow to the head with an appropriate device in such a way that the bird is rendered unconscious by the first blow; in the case of a captive bolt, the device is to be held to the head in such a way that it is certain to hit the brain.

4.4.2 Bleeding

The sticking and bleeding of all animals is to be performed as quickly as possible after stunning, no matter how they were stunned (ref. 'Stun to Stick' intervals in Appendix 1.5). Everything has to be done to ensure that the animal does not regain consciousness prior to or during bleeding. Pigs and cattle must be bled by inserting the sticking knife in the breast.¹² Small ruminants and poultry are to be bled by opening both carotid arteries. Any animals where doubts exist as to the success of stunning and/or faulty bleeding is determined are to be singled

¹² If this is not possible in exceptional cases with cattle, both carotid arteries must be opened.

out and immediately stunned or stuck again¹³. Operational and functioning standby devices for stunning and bleeding must be readily available. Workers must be capable of recognising when animals have not been bled sufficiently, to reach them and to have enough time to perform another cut or to kill them expertly. If in the case of poultry, the conveyor belt stops running, stunned birds are immediately to be bled by hand. Those birds which were stunned earliest are the first to be bled.

It must be possible to check the effectiveness of the bleeding procedure of every animal, if the volume of blood bled out is insufficient¹⁴ sticking must be repeated. If automatic devices are used to measure the volume of blood bled out, they are to be checked at least once a day to see that they are operating properly. Spot checks are to be performed as to the volume of blood bled out. If there are any deviations, the errors are to be determined and remedied. The animal welfare officer checks and records the bleeding every day of a specific number of animals determined for each facility. If deficiencies in the bleeding operation are found, the causes are to be determined and suitable corrective measures introduced.

It is necessary to ensure that every animal is dead before further cutting and processing commences. Further slaughter work¹⁵ may only be continued if tests have been performed to ensure that the animal shows no signs of movement, corneal reflexes or breathing and all its muscles are relaxed.

¹³ In the case of poultry, this can be done by cutting off the head instead of sticking them again.

¹⁴ The volumes of blood bled off and the bleeding times shown in Appendix 1.6 are to be observed.

¹⁵ This includes also cutting off the head.

Appendix 1: Transport and slaughtering

1.1 Loading density (in the case of journeys lasting more than 4 hours or at outside temperatures of over 24°C)

The specifications as to available space are based on an expert opinion drafted by the EFSA (European Food Safety Authority) in 2011 resp. the SCAHAW (Scientific Committee on Animal Health and Animal Welfare) issued by the EU in 2002

Cattle

The area is calculated according to the following equation: $A = 0.0315 W^{0.67}$

(A = area, W = live weight)

live weight per animal up to kg	minimum floor area per animal in m ² according to the Naturland standards
50	0.43
110	0.73
200	1.09
325	1.52
550	1.6
600	1.6
750	1.6
> 750	1.6

Pigs

The area is calculated according to the following equation: $A = 0.0274 W^{0.67}$

(A = area, W = live weight)

live weight per animal up to kg	minimum floor area per animal in m ² according to the Naturland standards
6	0.09
10	0.13
15	0.17
20	0.20
25	0.24
30	0.27
35	0.30
40	0.32
45	0.35
50	0.38
60	0.43
70	0.47
80	0.52
90	0.56
100	0.60
110	0.64
120	0.68
>120	> 0.7

Sheep/goats

The area is calculated according to the following equation: $A = 0.033 W^{0.67}$

(A = area, W = live weight) for unshorn sheep

live weight per animal up to kg	minimum floor area per animal in m ² according to the Naturland standards
10	0.15
20	0.25
30	0.32

40	0.39
55 kg	0.48
>55 kg	> 0.48

The area is calculated according to the following equation: $A = 0.026 W^{0.67}$

(A = area, W = live weight) for shorn sheep

live weight per animal up to kg	minimum floor area per animal in m ² according to the Naturland standards
10	0.12
20	0.19
30	0.25
40	0.31
55 kg	0.38
>55 kg	> 0.38

Poultry

An extra area of 20% is added to the statutorily permissible minimum area. The extended space requirements need not be complied with at low temperatures¹⁶ if there is any risk of the poultry suffering from hypothermia despite the implementation of standard protective methods (e. g. covering the sides of the transport vehicle without interrupting the supply of fresh air).

weight up to (kg)	minimum floor area (in cm ²)/kg according to the Naturland standards
1.0	240
1.3	228
1.6	216
2.0	204
3.0	192
4.0	156
5.0	138
10.0	126
15.0	126
30.0	126

Besides the figures supplied for loading density, the following maximum group sizes are to be observed:

cattle up to 100 kg	15 animals
sheep	30 animals

Breeding boars must be transported separately and old sows which were not members of a group should not, wherever possible, be transported with strange sows in one and the same compartment.

1.2 Minimum dimensions lairage

cattle (550 kg live weight)	3 m ² /animal
cattle (700 kg live weight)	4 m ² /animal
cattle (1000 kg live weight)	6 m ² /animal
fattening pig (110 - 120 kg live weight)	0.6 – 0.8 m ² /animal
sows and breeding boars	1.5 m ² /animal

1.3 Electrical stunning of ruminants and pigs

The figures are based on alternating currents of 50 to 100 Hertz (Hz). The minimum current must be maintained at least 4 seconds (except in individual cases explicitly dealt with below).

¹⁶ according to the Naturland specifications

sheep and goats	In the case of head-only or head-to-body stunning, the current value must be at least 1.0 A.
cattle	In the case of head-only or head-to-body stunning, the current value must be at least 2.5 A (from an age of 6 months) or at least 1.5 A (below 6 months). Ventricular fibrillation must last at least 10 seconds at least 1.5 A.
pigs (up to 130 kg live weight)	In the case of head-only stunning, the current must be at least 1.3 A.
pigs (over 130 kg live weight)	In the case of head-only stunning, the current must be at least 1.8 – 2.0 A at 50 Hz and 250 V and last at least 4 seconds. After this ventricular fibrillation must be applied.

1.4 Stunning of poultry

waterbath stunning	The time elapsing between shackling and immersion in the waterbath should be 30 seconds at the most and must at all events not take longer than 60 seconds. Breast comforters are to be used and soothing lighting is recommended. If a conveyor belt stops running, the birds still shackled must be removed from them after no more than 3 minutes.
	Within the first second, current values of at least 120 mA at up to 199 Hertz (hens) resp. 200 – 400 Hertz 400 mA (turkeys) resp. 60 mA (quails) must be reached and last for at least 4 seconds (hens, turkeys, quails) resp. 8 seconds at 130 mA (ducks, geese).
electrical head-only stunning with tongs or wall devices	At least 240 mA must be reached for 7 seconds for hens, 300 mA for geese, 400 mA for turkeys and 600 mA for ducks.

1.5 Maximum time elapsing between the end of stunning and sticking ('stun to stick' interval)

Species	Stunning method	'stun to stick' interval
pigs	electrical head-only stunning	max. 10 seconds
	electrical head-only and head-to-body stunning	max. 20 seconds when hung up to bleed out max. 10 seconds when bleeding out lying down
	gaseous stunning	max. 20 seconds after ejection resp. max. 30 seconds after immersion in the CO ₂ atmosphere (unless the plant has a licence to use higher CO ₂ concentrations and longer immersion periods)
	capture bolt	max. 20 seconds
cattle	capture bolt	max. 60 seconds, preferably 20 – 60 seconds
	ventricular fibrillation	max. 10 seconds (when bleeding out lying down) 20 seconds (when hung up to bleed out)
	head-only electrical stunning	max. 8 seconds
sheep and goats	head-only electrical stunning	max. 8 seconds
	capture bolt (held to back of head)	max. 15 seconds
sheep (polled)	capture bold (held to top of skull)	max. 20 seconds
poultry	electrical waterbath	max. 10 seconds after leaving the waterbath; in the case of irreversible stunning, longer intervals are permitted

	electrical tongs, wall-mounted devices, capture bolt or blow to head	max. 10 seconds
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1.6 Volume of blood bled out and bleeding-out time

To be sure that sufficient blood is bled out, the following minimum blood volumes must be measured in the first 30 seconds:

pig (120 kg, when hung up to bleed out)	> 4.5 litres resp. approx. 4% of the live weight (or 2 litres in the first 10 seconds)
cattle (500 kg)	10 litres
cattle (700 kg)	15 litres
sheep (40 kg)	1.5 litres

The following bleeding out times are to be adhered to:

cattle, pigs, sheep and goats	3 minutes minimum, preferably 5 minutes
all species of poultry	3 minutes minimum

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