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## EFSA Scientific opinions on the welfare of poultry: slaughter and killing for purposes other than slaughter

**Yves Van der Stede**

Animal Health and Welfare (AHAW)  
Animal and Plant Health (ALPHA) Unit

Trusted science for safe food

- General description of the mandates (background, request, animal species, adoption timeline, ToRs)
- Two Scientific opinions **published November 2019**:
  - EFSA Scientific opinion on the slaughter of animals: poultry  
<https://www.efsa.europa.eu/en/efsajournal/pub/5849>
  - EFSA Scientific opinion on the killing for purposes other than slaughter: poultry  
<https://www.efsa.europa.eu/en/efsajournal/pub/5850>



The screenshot shows the EFSA website interface. At the top, there is a navigation menu with options like 'About', 'News', 'Discover', 'Science', 'Publications', 'Applications', and 'Engage'. A search bar is visible on the right. The main content area features a news article with the title 'Poultry welfare at slaughter: hazards identified, measures proposed' and a date of '13 November 2019'. The article includes a sub-headline: 'EFSA has proposed measures to address the animal welfare hazards most commonly observed during the slaughter of poultry for food production and disease control.' Below the text, there is a 'Subject area' section with links for 'Animal health and welfare', 'Animal welfare', and 'Animal welfare at slaughter'. A 'Related News' section is also visible at the bottom, mentioning 'Rabbit cages: EFSA identifies welfare issues'.

## Background on the subject

- Council Regulation (EC) No 1099/2009
- Previous EFSA Scientific outputs adopted in 2004, 2006, 2012, 2013, 2014, 2015, 2017
- Terrestrial Animal Health Code from **OIE - revision of:**
  - Slaughter of animals (**Chapter 7.5**);
  - Killing of animals for disease control purposes (**Chapter 7.6**)

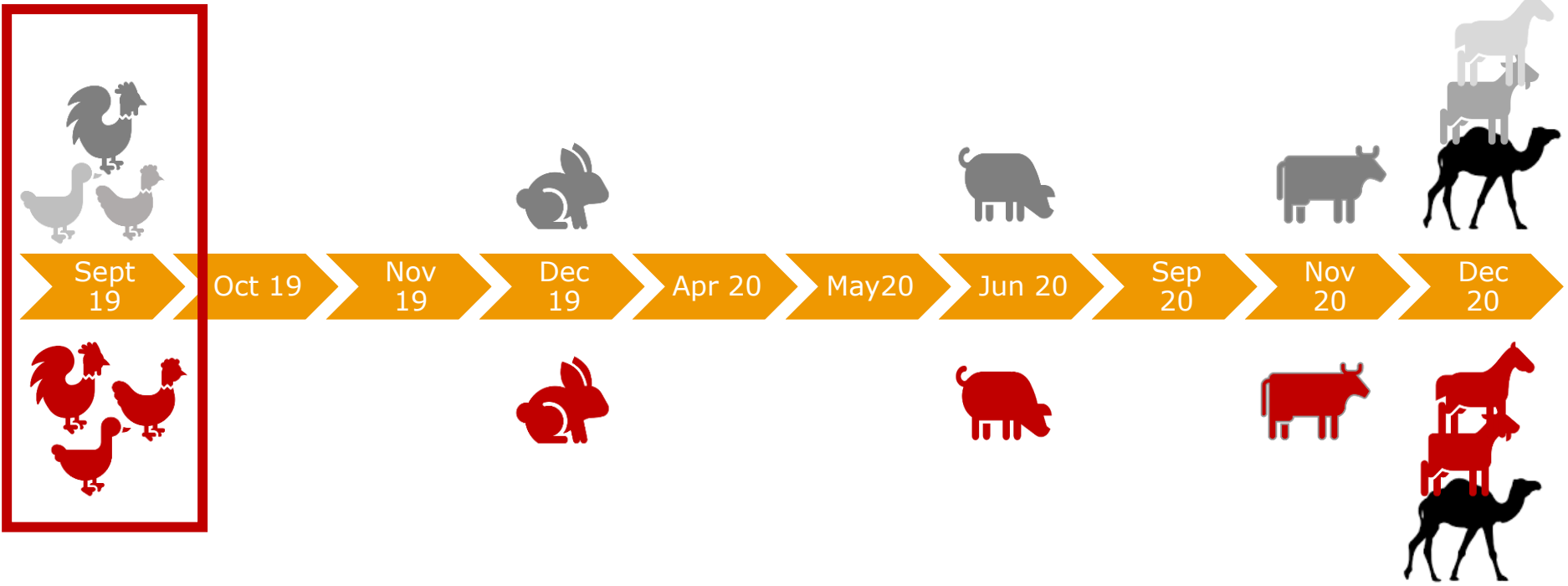
## Request to EFSA in 2019:

To review the scientific literature and provide a sound scientific basis for future discussions at international level on the welfare of the animals in the context of slaughter and other types of killing

## Animal species

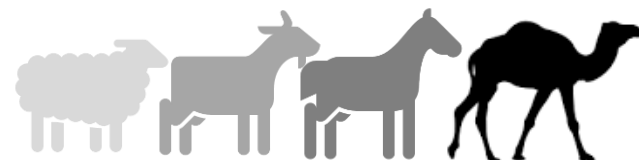
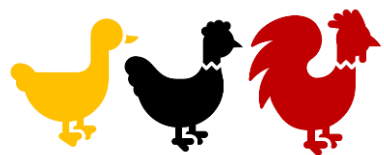
Animals in containers (domestic birds and rabbits); pigs; cattle; 'other species' (buffalo, bison, sheep, goats, camelids, deer, horses, ratites)

## Timeline for adoption: 10 Scientific opinions



- AW at slaughter
- AW during killing for purposes other than slaughter

Process steps to consider	ToRs
<ul style="list-style-type: none"> <li>• Arrival</li> <li>• Unloading</li> <li>• Lairage</li> <li>• <b>Handling</b> and moving (free moving animals only)</li> <li>• <b>Restraint</b></li> <li>• Stunning (<b>Stunning/killing</b>)</li> <li>• Bleeding</li> <li>• Slaughter of pregnant animals</li> <li>• Emergency killing (outside the normal slaughter line)</li> <li>• <b>Unacceptable methods on welfare grounds</b></li> </ul>	<p>ToR-1: Identify welfare hazards and their origins (in terms of facilities, equipment, staff)</p> <p>ToR-2: Define ABMs to assess performance on AW</p> <p>ToR-3: Provide preventive and corrective measures (structural or managerial) to address the hazards</p> <p>ToR-4: Point out specific hazards related to species or types of animals (e.g., young, with horns)</p>



# Scientific opinion on slaughter of animals: poultry

Adopted in September 2019

Published in November 2019 at: <https://www.efsa.europa.eu/en/efsajournal/pub/5849>

## Slaughter

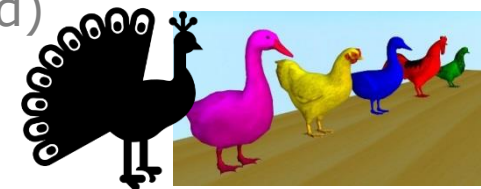
Killing of poultry for human consumption that could take place in a slaughter plant or during on-farm slaughter,

from the arrival until the animal is dead, including slaughter without stunning (assessment of AW on the farm and during transport is excluded).



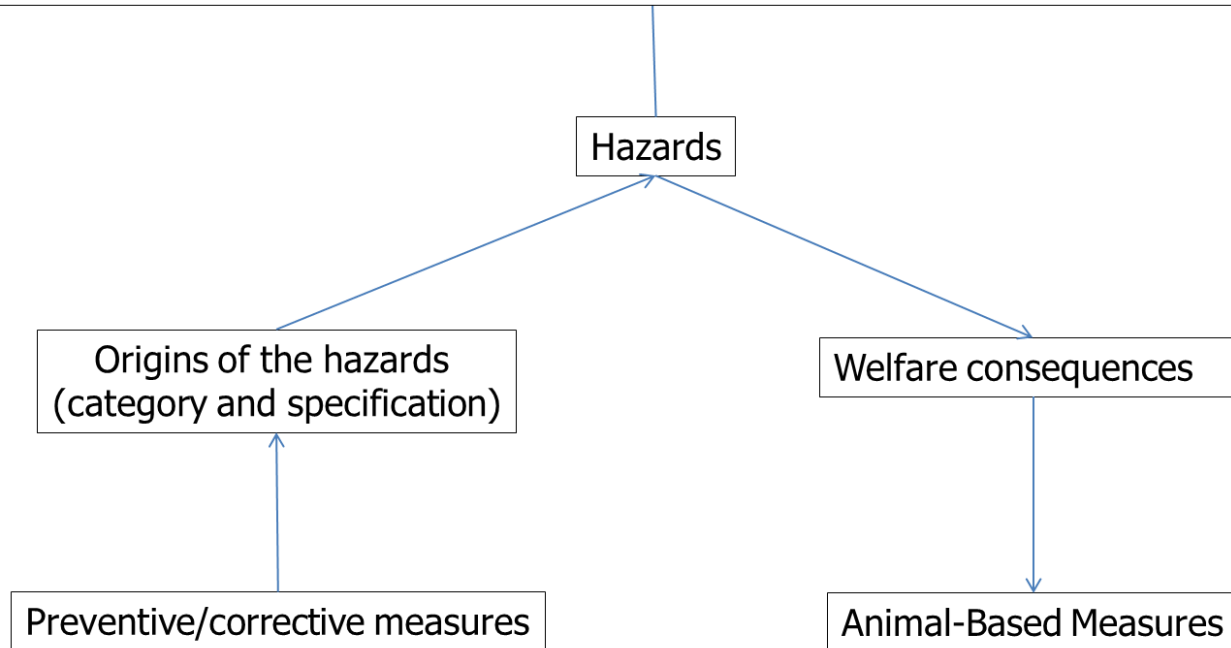
## Poultry

Domestic birds as defined by the OIE, that can be put in crates and containers, such as chickens, turkeys, quails, ducks and geese, and game birds, (ratites-free moving animals are excluded)



Phases (and processes):

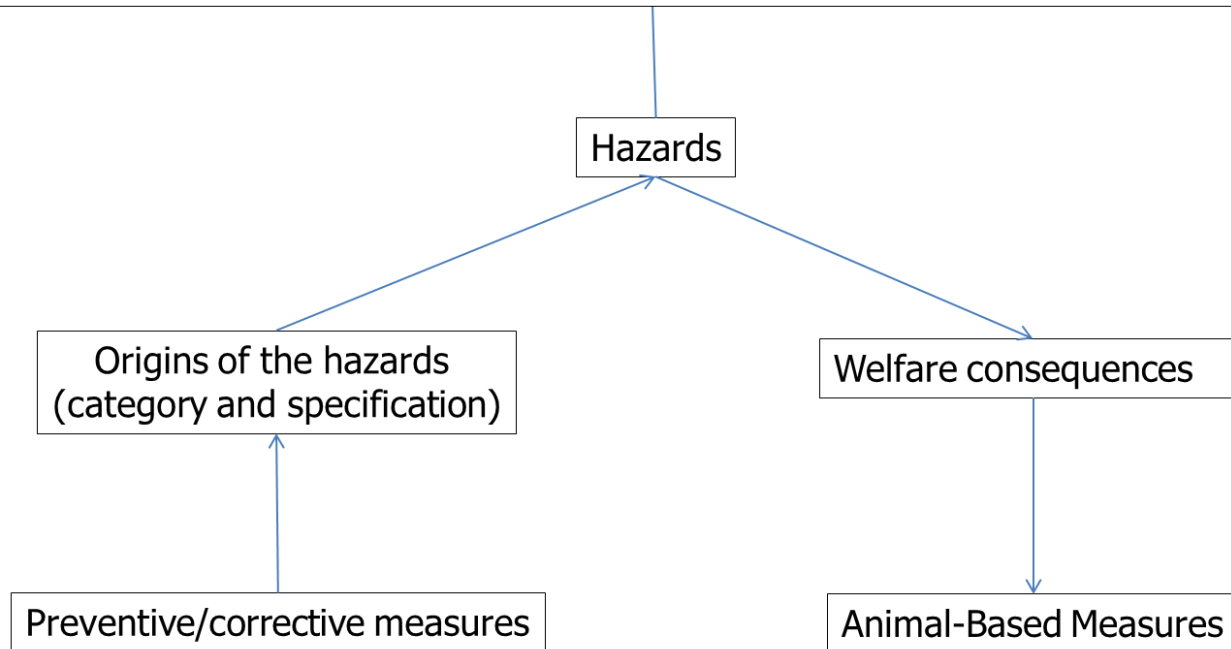
- 1- Pre-stunning (arrival, lairage, unloading, handling)
- 2- Stunning (electrical-, CAS-, mechanical-stunning methods (+restraint))
- 3- Bleeding (following stunning, during slaughter without stunning (+restraint))





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## ➤ development of outcome tables

- One outcome table for each process & overall assessment
- Summary of all retrieved information
- Main Results of the SO and main basis for Conclusions and Recommendations

- **Electrical stunning methods (+ restraint):**

1. Waterbath
2. Head-only

- **Controlled atmosphere stunning methods:**

1. Carbon dioxide in two phases
2. Mixture of carbon dioxide with inert gases
3. Inert gases
4. LAPS

- **Mechanical stunning methods (+ restraint):**

1. Captive bolt
2. Percussive blow to the head
3. Cervical dislocation
4. Decapitation



## 'handling and removing of birds from crates or containers'

**Table 12:** Outcome table on 'handling and removing of birds from crates or containers': hazards (with the number of the section where the hazard's full description is provided), with relevant welfare consequences, ABMs, origin of hazards, and preventive and corrective measures

Hazard	Welfare consequence/s occurring to the birds due to the hazard	Hazard origin/s	Hazard origin specification	Preventive measure/s for hazard (implementation of SOP)	Corrective measure/s for the hazard
<b>Rough handling of the birds during removal from the containers (3.6.1.9)</b>	Pain, fear	Staff, facilities, equipment	Unskilled personnel; operator fatigue; high throughput rate, poorly designed containers (with small openings)	<ul style="list-style-type: none"> <li>• Staff training</li> <li>• Staff rotation</li> <li>• Change container system</li> <li>• Slow down the line speed</li> </ul>	None
<b>Tipping or dumping on conveyors (3.6.1.10)</b>	Pain, fear	Staff, equipment	Poor handling; equipment poorly designed and constructed; speed of tilting birds; slow speed of reception belt	<ul style="list-style-type: none"> <li>• Staff training</li> <li>• Staff rotation</li> <li>• Correct design and setting up of equipment</li> </ul>	Distribute birds evenly on the belt
<b>Bunching on the conveyor belts (3.6.1.11)</b>	Pain, fear	Equipment	Slow moving conveyor/fast transfer between conveyors	Correct design and setting up of the conveyor belt	Synchronise speed of the conveyor belt

**ABMs:** injuries, vocalisations, wing flapping, bunching

ABM: animal-based measure; SOP: standard operating procedure.

- **35 hazards identified: 80% due to lack of skills and trained staff**
  - All processes should be carried out by trained and skilled personnel
  - **Training of staff** / clear identification of roles and responsibilities
- **For most hazards -> preventive measures can be put in place, whereas relevant corrective measures are not always available**
  - **Priority** should be given to **preventive measures**.
  - When **no measures to correct the hazard** exist: **mitigation of the welfare consequences** should be put in place

- **10 welfare consequences identified:**

	<b>Consciousness</b>	<b>Heat stress</b>	<b>Cold stress</b>	<b>Prolonged thirst</b>	<b>Prolonged hunger</b>	<b>Restriction of movements</b>	<b>Pain</b>	<b>Fear</b>	<b>Distress</b>	<b>Respiratory distress</b>
Pre-stunning		X	X	X	X	X	X	X		
Stunning	X						X	X		X
Bleeding	X						X	X	X	

**They can be the result of a single or several hazards**

- **AHAW Panel agrees with the principles of the OIE Terrestrial code regarding unacceptable methods ...** examples of such methods are:
  - electroimmobilisation for neck-cutting or preventing wing flapping during bleeding,
  - brain piercing through the skull without prior stunning

- 11 Hazards, 10 linked to staff as origin: arrival, unloading, lairage and handling
- Welfare consequences might be results of hazards occurring on the farm and/or during transport
- Some welfare consequences have no Animal Based Measures (ABMS, e.g. prolonged thirst), and others have ABMs that are very difficult to assess while birds are inside the containers (e.g. fear).
- The welfare status of birds should be assessed and monitored at each phase of slaughter by assessing the ABMs. If the hazard is present and use of ABMs is not feasible, it's assumed that the welfare consequences are experienced by the birds.
- **Preventive and corrective actions:**
  - 1) maintenance of the physiology of the animals (ventilation, heat and cold stress)
  - 2) prevention/correction of hazards leading to **pain and fear** (handling birds)

- **Number of hazards depend on the stunning method used:**
  - Induction of unconsciousness (Controlled Atmosphere stunning);
  - Restraint of birds (electrical and mechanical stunning)
  
- **Some hazards are inherent in the stunning method and cannot be avoided;**
  
- **Majority of Hazards mainly due to unskilled staff;**
  - **Prevention from recovering consciousness after stunning** to avoid pain, fear and distress during bleeding;
  - **All methods should allow monitoring for unconsciousness** before the bleeding phase.
  - A **back-up stunning method should be ready at all times** to mitigate the welfare consequences;
  
- **Hanging upside down is a physiologically abnormal posture for poultry**
  - To **prevent birds experiencing severe welfare consequences such as pain and fear** animals should not be shackled while conscious

- In **electrical water bath stunning**, not all birds processed at the same time receive the same current.
  - For electrical water bath stunning of poultry, the parameters that should be used are reported in Table 2 of the opinion, except for broilers and turkeys for which the frequency should not exceed 600 Hz
- For 'expansion of gases in the body cavity' related to **LAPS**: lack of field experience and of scientific data has reduced the global certainty level of this hazard;
- **Cervical dislocation** does not always lead to the immediate onset of unconsciousness;
  - Cervical dislocation should not be used for routine stunning -> only be applied as back-up method;
  - Manual cervical dislocation should not be applied to ducks and geese, and to any bird heavier than 3 kg;
  - Cervical dislocation by crushing should not be used under any circumstances.

- **Bleeding during slaughter without stunning** will expose 100% of animals to hazards that apply to the bleeding phase
- The use of this method will lead to unavoidable **pain, fear and distress**
  - To prevent birds experiencing severe welfare consequences such as pain and fear animals should not be bled while conscious
- **Bleeding following stunning**
  - Birds should be prevented from recovering consciousness;
  - During the bleeding phase, unconsciousness should be monitored until birds are dead;
- For both methods: to prevent pain and fear, death must be monitored and confirmed in birds before they enter the scalding tank.



# Scientific opinion on the killing for purposes other than slaughter: poultry

Adopted in September 2019

Published in November 2019 at: <https://www.efsa.europa.eu/en/efsajournal/pub/5850>

## Other purposes

- large scale killings in case of depopulation for disease control purposes and similar situations (environmental contamination, disaster management, etc.) outside slaughterhouses.
- killing of unproductive animals that might be practiced on-farm; this can occur for health, welfare or economic reasons and can be split in two subcategories:
  1. large-scale killing of unproductive birds (e.g. maceration of day-old chicks);
  2. individual killing of unproductive, unhealthy or injured birds.

- **Electrical methods (+ restraint):**

1. Waterbath
2. Head-only
3. Head-to-body

- **Modified atmosphere methods:**

1. Whole house gassing
2. Whole house gassing with gas-filled foam
3. Gas mixtures in containers
4. Low atmospheric pressure stunning/killing (LAPS)
5. Modified atmospheres for day-old chicks

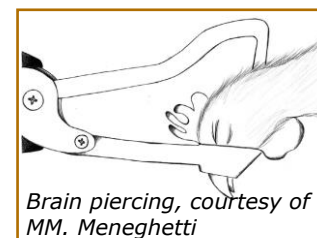
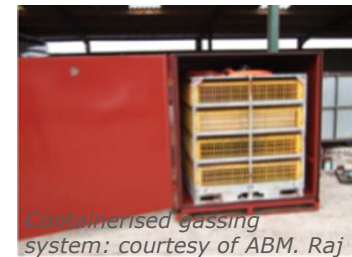
- **Mechanical methods (+ restraint):**

1. Captive bolt
2. Percussive blow to the head

- **Mechanical killing-only (non stunning) methods:**

1. Cervical dislocation following stunning
2. Neck-cutting (bleeding) following stunning
3. Maceration of day-old chicks
4. Decapitation following stunning
5. Brain piercing following stunning

- **Lethal injection (+ restraint)**



- **29 hazards and majority linked to failure in provoking death & lack of skills by staff**
  - Training of farm staff;
  - Roles and responsibilities of staff involved in large-scale killing on-farm should be clearly identified.
  - Appropriate measures:
    - written SOPs, contingency plans;
    - training and rotation of the staff;
    - appropriate setting and use of the equipment.

■ **8 welfare consequences identified:**

<b>Not dead</b> (after application of the killing method)	<b>Pain</b>
<b>Consciousness</b> (after application of the killing method)	<b>Fear</b>
<b>Heat stress</b>	<b>Distress</b>
<b>Cold stress</b>	<b>Respiratory distress</b>

- **The AHAW Panel agrees with the principles of the OIE Terrestrial code regarding unacceptable methods ...** examples of methods that should not be used: killing poultry by burying, burning, drowning; the addition of poisons, pesticides or any other toxic substances to feed or water for killing

## - Electrical methods

- **Head-only electrical stunning** does not lead to death
  - If applied --> a killing procedure should follow (e.g. cervical dislocation)
- For on-farm killing of poultry using a **waterbath** a minimum current of **400 mA** and frequency of maximum **50 Hz** should be used

## - Modified atmosphere method

- Since modified atmosphere methods do not induce immediate loss of consciousness, **the welfare consequences can be experienced by the birds during the induction phase**
- **Whole house stunning is the preferred method**, when feasible to seal the barn, because does not require handling of birds;
- In whole house gassing, **direct injection of liquid gas in the barn should not be used.**

## - Mechanical methods

- **Captive bolt** is enough to kill the animal: death should be confirmed after shooting.
  - Repeated use of a captive bolt gun will lead to overheating of the barrel and failure of the gun. A **sufficient number of guns** should be made available such that each one can be rested to cool off.
  
- **Cervical dislocation:**
  - **by crushing** should **not** be used
  - **by stretching and twisting** of the neck should only be applied to kill **unconscious** birds
  
- **Decapitation and brain piercing:**
  - **should not be used** for killing **conscious** birds
  
- **Maceration of day-old chicks: 3 hazards identified and having staff as origin:** i) slow rotation of blades or rollers ii) rollers set too wide iii) overloading'
  - Technology to prevent the necessity of killing surplus/unproductive animals (e.g. male day-old chicks from layers' genotypes) should be encouraged in single farm-scale killing as well as big hatcheries

## **Lethal injection**

- If not performed correctly, lethal injection **can be very painful and birds remain conscious/alive experiencing severe welfare consequences, such as pain, fear and distress**
  - should be administered strictly following the manufacturer's instructions on dose, route and rate of administration
  - poisons/toxins should not be used for killing for purposes other than slaughter.

## **For any killing method:**

- ↘ A back-up killing method should be ready at any time
- ↘ Death should always be confirmed before disposing of carcasses

# Thank you for your attention!

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<https://www.efsa.europa.eu/en/topics/topic/animal-health-and-welfare>



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