



French Reference Centre
for Animal Welfare

Suggestions for welfare assessment of poultry on depopulation site



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Introduction

The following document proposes suggestions for the welfare assessment of poultry on depopulation site. Three separate assessments have been developed depending on the depopulation method used, i.e., whole-house gassing, gassing in gradually-filled containers or killing with non-penetrative captive bolt stunners. Description of these depopulation methods and their procedures can be found in the report of the EURCAW-Poultry-SFA entitled “Depopulation in case of Avian Influenza: Efficacy and welfare consequences of the depopulation methods used in the EU” (EURCAW-Poultry-SFA, 2025).

All three suggestions for welfare assessment represent a preliminary protocol for evaluating poultry welfare at depopulation sites, which are meant to be revised. Revisions are scheduled in 2025 based on field feedback gathered from depopulation operators who will have tested the different protocols and provided insights regarding their feasibility and validity.

The protocols are structured in a consistent manner: first, general instructions are provided, along with a reminder of the equipment necessary to conduct the assessment. Next, the assessor is prompted to record information about the farm and the types of animals being depopulated. Following this, a timeline is presented as a visual summary of all data points to be collected during each key phase of the depopulation method. Subsequently, general information regarding the operating procedures is requested. For each key phase of depopulation method, operators are required 1) to measure specific variables and animal-based indicators and 2) to report whether the procedures were feasible and valid at the end of each key phase.

This deliverable was developed through a collaboration between the EURCAW-Poultry-SFA and the French National Reference Centre for Animal Welfare.

Whole-house gassing

Words of caution:

Before filling out the following form, please make sure that you have carefully read it in its entirety – including the **behavioural repertoire** (p14).

To complete the assessment, the following material is required:

- A pen
- A stopwatch
- Assessment recording sheets
- A microphone, if possible

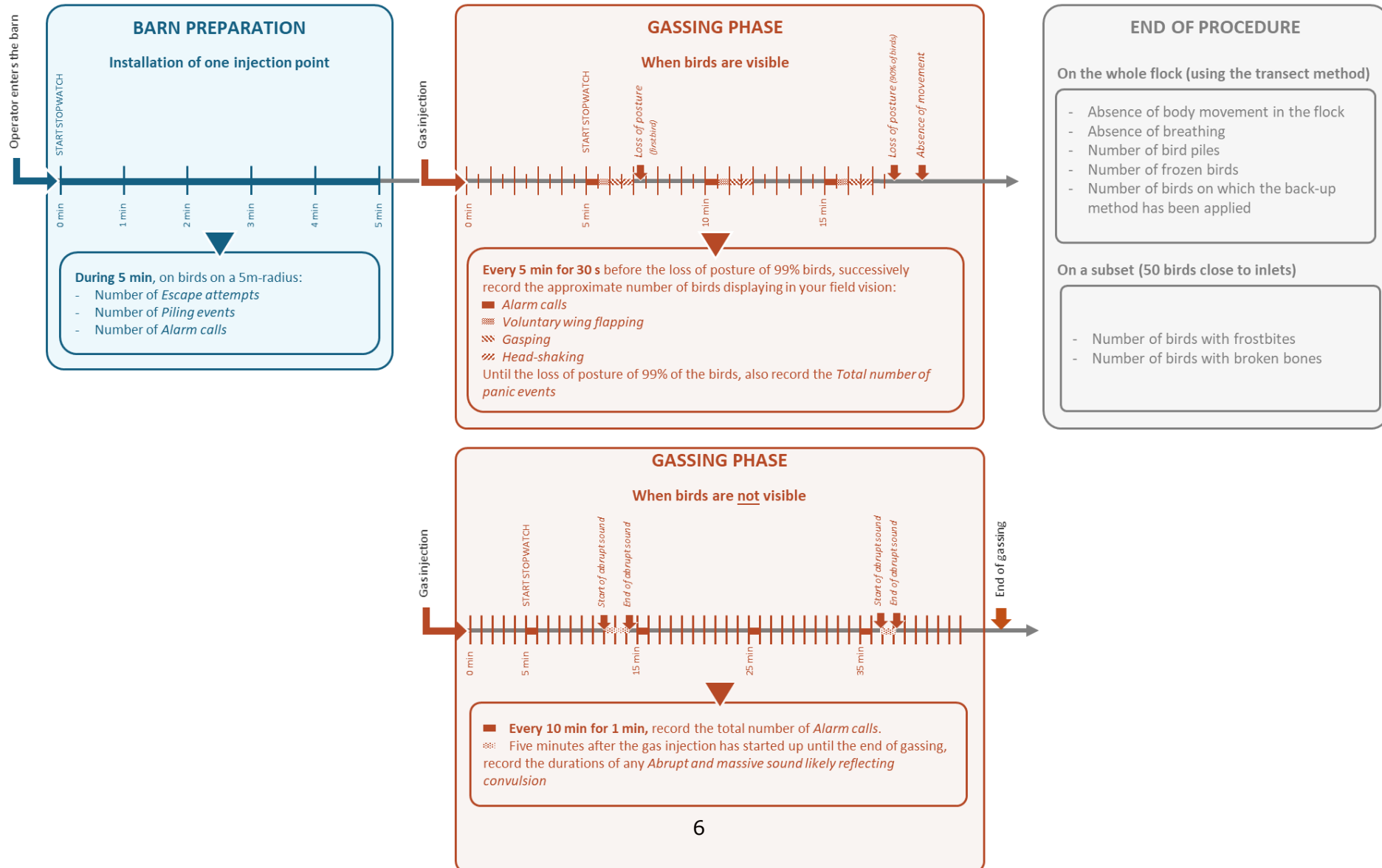
One form has to be filled per house to depopulate (meaning that 3 independent forms must be filled if 3 houses of the same farm have to be depopulated).

General information

Please complete the following table to the best of your ability.

Date			
Assessor's name			
Poultry type	<input type="checkbox"/> Laying hens	<input type="checkbox"/> Turkeys	<input type="checkbox"/> Others
	<input type="checkbox"/> Broilers	<input type="checkbox"/> Geese	
	<input type="checkbox"/> Ducks	<input type="checkbox"/> Guinea fowls	
Animal category	<input type="checkbox"/> Day-old chicks	<input type="checkbox"/> Production poultry	<input type="checkbox"/> Breeding poultry
	<input type="checkbox"/> Single-tier	<input type="checkbox"/> Multi-tier	<input type="checkbox"/> Cages
Housing system	<input type="checkbox"/> Free range		
	<input type="checkbox"/> Yes		
Outdoor access	<input type="checkbox"/> No		
Flock size			
House dimension (length*width*height)			

Data collection overview



Operating procedure

Variable	Your answer		
Type of gas	<input type="checkbox"/> CO ₂ only	<input type="checkbox"/> N ₂ only	<input type="checkbox"/> Other (please specify):
Pre-heating of gas	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Other (please specify):
Multi-injection points	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Protective measures taken to avoid direct contact of the gas on birds	<input type="checkbox"/> None	<input type="checkbox"/> Fences around the inlets	<input type="checkbox"/> Gas released directed toward the ceiling
	<input type="checkbox"/> Other (please specify):		
Target concentration (in % CO ₂ or % O ₂)			
Time to reach 40% CO ₂ (if applicable)			
Time to reach the target concentration (in min from the moment the gas is released)			

Barn preparation

Follow an operator in charge of **installing an injection point** (i.e., by bringing and setting-up the required equipment – like unfolding a hose – to allow for the gas injection inside the house). Position yourself approximatively **1m away from the operator**, and start recording the indicators below as soon as the operator enter the barn **on birds in a 5m-radius** around them (**START STOPWATCH**). The assessment should last for **5 min**.

Animal-based indicator	Scoring	Your score (to complete by the assessor)	Comment on the feasibility of the assessment
Escape attempt	Number of events (e.g., ### II)		
Piling-up	Number of events (e.g., ### II)		
Alarm call	Number of events (e.g., ### II)		

General comments on the assessment of the barn preparation

Comments on the feasibility of the assessment:

Comments on the validity of the assessment:

For feasibility, please provide feedback on the **amount of time and effort** it took to complete the assessment separately for catching, restraining, and end of procedure. Please also indicate the **extent to which it was possible to assess several indicators** at once. For validity, please provide feedback on the criteria you were asked to evaluate and whether you feel they were valid indicators of animal welfare during the depopulation by container gas unit. If you feel that any important criteria were neglected in any part of the assessment, please also indicate it here. Any **suggestions to improve the current proposal for welfare assessment are welcome**.

Gassing

1) In case the birds can be seen

Position yourself outside the barn, in a spot **where you can see** (e.g., next to a window or the screen broadcasting images from the barn) **and hear the birds**. **Five minutes after the gas injection has started (START STOPWATCH)**, record the following events occurring in your field of vision. The assessment **stops when 99 % of the birds have lost posture or after 53 minutes of gassing** (i.e., [52:00] on the stopwatch).

Point of caution: Four indicators must be successively recorded during 30 s in a 2-min timeframe.

Animal-based indicator	Scoring	Your score (to complete by the assessor)									
		Time intervals on the stopwatch									
		[00:00-02:00]	[05:00-07:00]	[10:00-12:00]	[15:00-17:00]	[20:00-22:00]	[25:00-27:00]	[30:00-32:00]	[35:00-37:00]	[40:00-42:00]	[45:00-47:00]
Alarm call before loss of posture of 99 % of the birds	Approximate number of birds displaying said behaviour during the first 30 s	None* Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA
Voluntary wing flapping before loss of posture of 99 % of the birds	Approximate number of birds displaying said behaviour during the next 30 s	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA
Gasping before loss of posture of 99 % of the birds	Approximate number of birds displaying said behaviour during the second next 30 s	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA	None Some A lot NA

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Head-shaking before loss of posture of 99 % of the birds	Approximate number of birds displaying said behaviour during the third next 30 s	[01:30-02:00]	[06:30-07:00]	[11:30-12:00]	[16:30-17:00]	[21:30-22:00]	[26:30-27:00]	[31:30-32:00]	[36:30-37:00]	[41:30-42:00]	[46:30-47:00]	
Escape attempt before loss of posture of 99 % of the birds	Number of events (e.g., ### ll)											
Loss of posture (1 st bird)	Time when the first bird loses posture											
Loss of posture (99 % birds)	Time when 99 % of the bird have lost posture (i.e., write down the stop time on the stopwatch)											
Absence of body movement in the flock (99 % birds)	Time when 99 % of the birds are lying still											

*Circle the approximate number of birds displaying alarm calls between times 00:00 and 00:30 on the stopwatch.

General comments on the assessment of the gassing phase (when birds can be seen)

Comments on the feasibility of the assessment:

Comments on the validity of the assessment:

For feasibility, please provide feedback on the **amount of time and effort** it took to complete the assessment separately for catching, restraining, and end of procedure. Please also indicate the **extent to which it was possible to assess several indicators** at once. For validity, please provide feedback on the criteria you were

asked to evaluate and whether you feel they were valid indicators of animal welfare during the depopulation by container gas unit. If you feel that any important criteria were neglected in any part of the assessment, please also indicate it here. Any **suggestions to improve the current proposal for welfare assessment are welcome.**

2) In case the birds cannot be seen

Position yourself **where it is the easiest to hear the birds** inside the barn. If possible, a microphone should be installed inside the barn for a better assessment of the auditory indicators detailed below. The assessment **starts 5-min after the gas injection has started (START STOPWATCH), until the end of gassing** (i.e., when the house starts being unsealed).

Point of caution: The number of *Alarm calls* must be recorded every 10 min during 1 min – starting 5 min after the gas has started to be injected in the house.

Animal-based indicator	Scoring	Your score (to complete by the assessor)					
Alarm call	Number recorded per min every 10 min	Time intervals					
		[00:00-01:00]	[11:00-12:00]	[20:00-21:00]	[30:00-31:00]	[40:00-41:00]	
		<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> None	
		<input type="checkbox"/> 1 or 2	<input type="checkbox"/> 1 or 2	<input type="checkbox"/> 1 or 2	<input type="checkbox"/> 1 or 2	<input type="checkbox"/> 1 or 2	
		<input type="checkbox"/> More than 2	<input type="checkbox"/> More than 2	<input type="checkbox"/> More than 2	<input type="checkbox"/> More than 2	<input type="checkbox"/> More than 2	
		<input type="checkbox"/> NA	<input type="checkbox"/> NA	<input type="checkbox"/> NA	<input type="checkbox"/> NA		
Abrupt and massive sound likely reflecting convulsions	Duration of bouts	Number of bouts					
		Duration	1 st bout	2 nd bout	3 rd bout	4 th bout	5 th bout
		Start time					
		End time					

General comments on the assessment of the gassing phase (when birds cannot be seen)

Comments on the feasibility of the assessment:

Comments on the validity of the assessment:

For feasibility, please provide feedback on the **amount of time and effort** it took to complete the assessment separately for catching, restraining, and end of procedure. Please also indicate the **extent to which it was possible to assess several indicators** at once. For validity, please provide feedback on the criteria you were asked to evaluate and whether you feel they were valid indicators of animal welfare during the depopulation by container gas unit. If you feel that any important criteria were neglected in any part of the assessment, please also indicate it here. Any **suggestions to improve the current proposal for welfare assessment are welcome**.

At the end of the procedure

Once it is safe to enter the barn (i.e., the air composition is back to baseline), the following indicators must be recorded:

Animal-based indicator	Scoring	Your score (to complete by the assessor)
Absence of body movement in the flock	Binary score (circle the proper answer) using the transect method*	Absence of movement – Movement observed
Absence of breathing		Absence of breathing – Breathing observed
Piles of birds	Number of piles of birds present in the barn (e.g., ### II)	
Frozen bird	Number of frozen birds (e.g., ### II)	
Frostbite	Number observed on 50 birds positioned next to the inlets (e.g., ### II)	
Broken bone		
Other variable	Scoring	Your score (to complete by the assessor)
Back-up method	Number of birds on which the back-up method has been applied (e.g., ### II)	

*The transect method consists in walking in lines longitudinally in the barn while observing birds (on both left and right of the trajectory) showing any of the impaired welfare indicators. Between three and five transect lines might be used to cover the width of the house.

General comments on the assessment of poultry welfare at the end of the procedure

Comments on the feasibility of the assessment:

Comments on the validity of the assessment:

For feasibility, please provide feedback on the **amount of time and effort** it took to complete the assessment separately for catching, restraining, and end of procedure. Please also indicate the **extent to which it was possible to assess several indicators** at once. For validity, please provide feedback on the criteria you were asked to evaluate and whether you feel they were valid indicators of animal welfare during the depopulation by container gas unit. If you feel that any important criteria were neglected in any part of the assessment, please also indicate it here. Any **suggestions to improve the current proposal for welfare assessment are welcome**.

Behavioural repertoire

Animal-Based indicator	Definition (reference)
Escape attempt	Attempts to move, run or fly away from the situation (Graml et al., 2007)
Piling up	Birds crowding against and on top of each other (EFSA, 2019)
Alarm call	Variety of vocalisations or distress calls: Single or repeated short and loud shrieking (screaming) at high frequencies (EFSA, 2022)
Loss of posture	Cessation of standing, with the head resting against either the floor or wall (Gent et al., 2020)
Voluntary wing flapping	Bouts of fast, short flapping, rapid movement of the wings in a motion similar to attempted flight (Gerritzen et al., 2013; Gent et al., 2020; Rucinque et al., 2024)
Panting	Bird is breathing hard and quickly, constantly shallows respiration, with beak open (Mahmoud et al., 2015)
Gasping	Opening and closing mouth without neck extension and with reduced frequency compared to physiological breathing (Rucinque et al., 2024)
Head-shaking	Rapid side-to-side movement of the head, which occurred whilst the animal was standing or walking or sitting (Gent et al., 2020; Rucinque et al., 2024)
Absence of movement	Limp carcass, with the bird being completely still including the cessation of visible breathing movements (Rucinque et al., 2024)
Abrupt and massive sound likely reflecting convulsions	Sounds generated by birds, caused by involuntary movement of air through the body during convulsions (Martin et al., 2016)
Absence of breathing	Absence of movements of the beak or abdominal muscles around the cloaca (EFSA, 2013; Contreras-Jodar et al., 2022)
Frozen bird	All or part of the bird's body is frozen
Frostbite	Damage that occurs to bodily tissues from exposure to extremely cold when fluid cells freezes (Odemero & Oghenesuvwe, 2016)
Broken bone	One or more fracture lines clearly separating a bone into 2 or more separated fragments (Toscano et al., 2020)
Being held in inverted position	The bird is held inverted (upside down) by the legs (Sparrey et al., 2019)

Gassing of birds in gradually-filled containers

Words of caution:

Before filling out the following form, please make sure that you have carefully read it in its entirety – including the behavioural repertoire (p31). Remember to print the part relative to the assessment of poultry welfare as many times as necessary, based on the number of catchers and on a minimum of 3 catchers if 3 or more catchers are present.

To complete the assessment, the following material is required:

- A pen
- This form (printed)
- One assessment sheet per operator (catching part)
- A stopwatch

General information

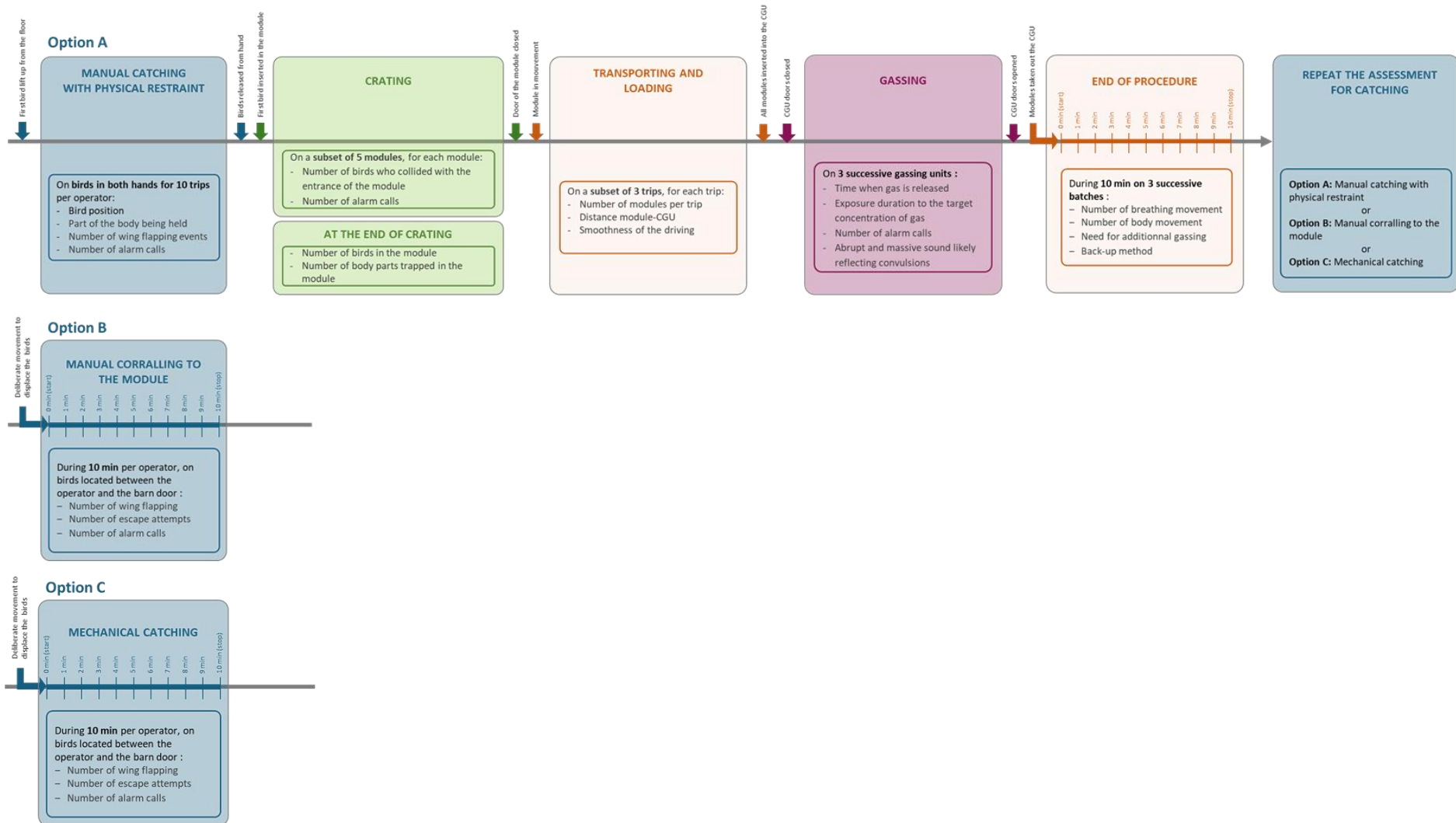
Date			
Assessor's name			
Poultry type	<input type="checkbox"/> Laying hens	<input type="checkbox"/> Turkeys	<input type="checkbox"/> Others
	<input type="checkbox"/> Broilers	<input type="checkbox"/> Geese	
	<input type="checkbox"/> Ducks	<input type="checkbox"/> Guinea fowls	
Animal category	<input type="checkbox"/> Day-old chicks	<input type="checkbox"/> Production poultry	<input type="checkbox"/> Breeding poultry
	<input type="checkbox"/> Single-tier	<input type="checkbox"/> Multi-tier	<input type="checkbox"/> Cages
Housing system	<input type="checkbox"/> Free range		
	<input type="checkbox"/> Yes		
Outdoor access	<input type="checkbox"/> No		
Flock size			

Operating procedure

Variable	Your answer		
Type of gas	<input type="checkbox"/> CO ₂ - only	<input type="checkbox"/> CO ₂ – Inert (please specify, e.g., Ar or N ₂):	<input type="checkbox"/> Other (please specify):
Pre-heating of gas	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Target concentration (in % CO ₂ or % O ₂)			
Effective time to reach the target concentration (in min from the moment the gas is released)			
Type of CGU (e.g., Livetec Micro [®])			
Number of modules inserted per CGU*			
Dimension of the module (l*w*h)			
Number of birds inserted per module			

*here we consider a module to be the cage/crate in which the birds are put before being inserted into the Container Gas Unit (CGU)

Data collection overview



General comments about the assessment

After you complete each part of your assessment, please **provide constructive feedback about the feasibility and validity** of the different parts of the operator assessment.

You will find this type of table at the end of each evaluation section:

Comments on the feasibility of the assessment:

Comments on the validity of the assessment:

For feasibility, please provide feedback on the **amount of time and effort** it took to complete the assessment separately for catching, restraining, and end of procedure. Please also indicate the **extent to which it was possible to assess several indicators** at once. For validity, please provide feedback on the criteria you were asked to evaluate and whether you feel they were valid indicators of animal welfare during the depopulation by container gas units. If you feel that any important criteria was neglected in any part of the assessment, please also indicate it here. Any **suggestions to improve the current proposal for welfare assessment are welcome**.

Catching

Please **print the pages relative to the assessment of poultry welfare during the catching phase** (p18-p25) **as many times as there are handling operators** (and at least on 3 handling operators if three or more are present). Only print and fill in the pages which apply to the situation at stake.

Bear also in mind that the assessment of poultry welfare during the catching phase must be **repeated twice per operator**: once at the beginning of the overall assessment, and once during the second half of depopulation (i.e., the assessment during catching specifically is repeated twice per operator).

Here, we distinguish three types of catching: 1) manual catching with physical restraint of poultry (p19-21), 2) manual corralling of the poultry directly into modules (p22-23) and 3) mechanical catching of the birds (p24-25).

Manual catching with physical restraint of poultry refers to poultry catching by hands to take them to the module.

Manual corralling of the poultry directly into modules refers to the corralling of birds to the module without physical restraint and without the use of machinery.

Mechanical catching of poultry refers to the catching of birds using a specific equipment/machinery.

1) Manual catching with physical restraint of poultry

Variable	Your answer	
Operator ID (e.g., operator n°1)		
Operators trained to catch the birds	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Most birds transported in an inverted position	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Distance between barn door and module (in m)		

Follow an operator in charge of handling the birds. Position yourself at a distance which does not affect poultry behaviour or the operator's work.

Record the following animal-based indicators (and other variables) on a subset of **20 trips to the module (i.e. a trip corresponds to the travel performed by the operator with the birds in hand to the module)**. For each operator successively (and for a total of minimum 3 operators, if there are 3 or more handling operators), **10 successive trips** should be assessed **at the beginning of the depopulation**, and **10 successive trips** should be assessed **in the second half of the depopulation process**.

Example: How to perform the assessment with 3 operators? First assess 10 trips for operator 1, then 10 trips for operator 2, and 10 trips for operator 3. In the second half of the depopulation, start again and assess 10 trips for operator 1, then 10 trips for operator 2, and 10 trips for operator 3.

For each trip, the assessment is conducted at the level of the **group of birds held in both hands of the operator (if possible, otherwise on the birds that are visible)**. The assessment starts **when the first bird of the group is lifted from the floor (START STOPWATCH)**, and ends **when the last bird of the group is released from the operator's hand**.

First half of depopulation (the first 10 trips for this operator):		Trip									
Variable	Scoring	1	2	3	4	5	6	7	8	9	10
Number of birds on which the assessment is performed	Number of birds on which the assessment can be performed (i.e., the birds that the assessor can actually see and hear from their position)										
Number of birds caught by hand at once	Number of birds in the hands (L: left, R: right) of the operator	L: R:	L: R:	L: R:	L: R:	L: R:	L: R:	L: R:	L: R:	L: R:	L: R:
Bird position	Number of birds in both hands which are <u>not</u> held in an inverted position										
Part of the body being held	Number of birds in both hands which are not held by the legs (e.g., $\#\#\#$ II). <i>Please also specify the body parts by which the bird is held.</i>										
Catching end	Time on the stopwatch when the birds are released from the operator's hands	__h __min	__h __min	__h __min	__h __min	__h __min	__h __min	__h __min	__h __min	__h __min	__h __min
Animal-based indicator	Scoring	1	2	3	4	5	6	7	8	9	10
Wing flapping	Number of wing flapping events occurring from birds held in both hands										
Alarm call	Number of alarm calls occurring from both hands										

Second half of depopulation (the last 10 trips for this operator):		Trip									
Variable	Scoring	11	12	13	14	15	16	17	18	19	20
Number of birds on which the assessment is performed	Number of birds on which the assessment can be performed (i.e., the birds that the assessor can actually see and hear from their position)										
Number of birds caught by hand at once	Number of birds in the hands (L: left, R: right) of the operator	L: R:	L: R:	L: R:	L: R:	L: R:	L: R:	L: R:	L: R:	L: R:	L: R:
Bird position	Number of birds in both hands which are <u>not</u> held in an inverted position										
Part of the body being held	Number of birds in both hands which are not held by the legs (e.g., III II). <i>Please also specify the body parts by which the bird is held.</i>										
Catching end	Time on the stopwatch when the birds are released from the operator's hands	__h __min	__h __min	__h __min	__h __min	__h __min	__h __min	__h __min	__h __min	__h __min	__h __min
Animal-based indicator	Scoring	11	12	13	14	15	16	17	18	19	20
Wing flapping	Number of wing flapping events occurring from birds held in both hands										
Alarm call	Number of alarm calls occurring from both hands										

2) Manual corralling of the poultry directly into modules

Variable	Your answer	
Operator ID (e.g., operator n°1)		
Operator trained to corral the birds	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Distance between barn door and module (in m)		

Manual corralling starts when the operator makes a **deliberate movement to elicit the displacement** of one or several birds toward the barn door (**START STOPWATCH**).

Follow an operator in charge of corralling the birds. Position yourself near the operator, in a way that ensures poultry visibility without disturbing their behaviour and the work of the operator (e.g., 3-m away from the operator). **Only observe the birds located between the operator and the barn door**, which exhibit behaviours that are easy to distinguish.

Record the following animal-based indicators **during 20 min** per operator: follow the operator for **10 min at the beginning** of the depopulation and for **10 min during the second half of the depopulation process**.

Example: How to perform the assessment with 3 operators? First assess operator 1 for 10 min, then operator 2 for 10 min, and operator 3 for 10 min. In the second half of the depopulation, start again and assess operator 1 for 10 min, then operator 2 for 10 min, and operator 3 for 10 min.

First half of depopulation (the first 10 min for this operator):		
Animal-based indicator	Scoring	Your score (to complete by the assessor)
Wing flapping	Number of wing flapping events (e.g., ### II)	
Escape attempt	Number of escape attempts (e.g., ### II)	
Alarm call	Number of alarm calls (e.g., ### II)	

Second half of depopulation (the last 10 min for this operator):		
Animal-based indicator	Scoring	Your score (to complete by the assessor)
Wing flapping	Number of wing flapping events (e.g., ### II)	
Escape attempt	Number of escape attempts (e.g., ### II)	
Alarm call	Number of alarm calls (e.g., ### II)	

3) Mechanical catching

Variable	Your answer	
Operator ID (e.g., operator n°1)		
Operator trained to use the machinery	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Operator trained to handle the birds	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Type of equipment (e.g., conveyor belt)		
Number of birds caught per min		
Speed of the conveyor		
Belt length (in m)		

Mechanical catching starts when the operator makes a **deliberate movement to elicit the displacement** of one or several birds toward the mechanical equipment used to automatically catch the birds (e.g., conveyor belt) (**START STOPWATCH**).

Follow an operator in charge of catching the birds. Position yourself near the operator, in a way that ensures poultry visibility without disturbing their behaviour and the work of the operator (e.g., 3-m away from the operator). **Only observe the birds located between the operator and the catching equipment**, which exhibit behaviours that are easy to distinguish.

Record the following animal-based indicators **during 20 min** on birds that are brought by the operator to the conveyor but not yet caught by the equipment. Follow the operator for **10 min at the beginning** of the depopulation and for **10 min during the second half of the depopulation process**.

Example: How to perform the assessment with 3 operators? First assess operator 1 for 10 min, then operator 2 for 10 min, and operator 3 for 10 min. In the second half of the depopulation, start again and assess operator 1 for 10 min, then operator 2 for 10 min, and operator 3 for 10 min.

First half of depopulation (the first 10 min for this operator):		
Animal-based indicator	Scoring	Your score (to complete by the assessor)
Wing flapping	Number of wing flapping events (e.g., ### II)	
Escape attempt	Number of escape attempts (e.g., ### II)	
Alarm call	Number of alarm calls (e.g., ### II)	
Second half of depopulation (the last 10 min for this operator):		
Animal-based indicator	Scoring	Your score (to complete by the assessor)
Wing flapping	Number of wing flapping events (e.g., ### II)	
Escape attempt	Number of escape attempts (e.g., ### II)	
Alarm call	Number of alarm calls (e.g., ### II)	

General comments on the assessment of the catching phase

Comments on the feasibility of the assessment:

Comments on the validity of the assessment:

Crating

The assessment of poultry welfare during crating must be conducted on **5 consecutive modules**. For each module, the assessment starts when the whole body of the first bird is entirely inserted into the module (**START STOPWATCH**) and ends when the door of the module is closed (**STOP STOPWATCH**).

Record the following animal-based indicators occurring in your field of vision once the first bird is entirely inserted into the module and until the door of the module is closed.

Animal-based indicator	Scoring	Module				
		1	2	3	4	5
Collision between birds and the module	Number of birds colliding with the module's opening frame (e.g., IIII II)					
Alarm call	Number of alarm calls heard from the module (e.g., IIII II)					

Record the following variables once the door of the module is closed.

Variable	Description					
		1	2	3	4	5
Closed module door	Time on the stopwatch <u>once the door of the module is closed</u>					
Number of birds in the module	Number of birds inside the module <u>once the door is closed</u> (e.g., IIII II)					
Body part trapped in the module	Number of body parts trapped in the module <u>once the door is closed</u> (e.g., IIII II)					

General comments on the assessment of the crating phase

Comments on the feasibility of the assessment:

Comments on the validity of the assessment:

Transporting (including loading)

The assessment starts when the first module is moved **to be brought to the CGU**, and ends when **all modules have been inserted** into the CGU.

Variable	Description	Your answer
Distance module-CGU (in m)	Approximate distance (in m) between the initial location of the module (where birds were crated) and the location of the CGU	
Number of modules transported per trip	-	

Please record the following indicator **on 3 trips**.

Variable	Description	Trip		
		1	2	3
Smoothness of the driving	A driving is considered smooth when there are gradual accelerations/decelerations and the driver maneuvers corners with skill			

General comments on the assessment of the transporting phase

Comments on the feasibility of the assessment:

Comments on the validity of the assessment:

Gassing

Place yourself near to the CGU, where it is easier to hear the birds. The gassing phase starts when **the doors of the CGU are closed (START STOPWATCH)** and stops when the **CGU doors are opened (STOP STOPWATCH)**.

The assessment is performed on all the modules inside the CGU (i.e., one “gassing unit”), and is repeated on a total of **3 gassing units** (on the same CGU or another one).

Variable	Description	Gassing unit		
		1	2	3
Gas release	Time on the stopwatch when the gas is introduced in the CGU (e.g., 00:10)			
Exposure duration to target concentration	Time on the stopwatch when the target concentration is purposefully no longer maintained (i.e., at the end of the procedure) (e.g., 05:34)			
Opening of the CGU doors	Time on the stopwatch when the doors are opened (STOP STOPWATCH)			
Animal-based indicator	Description	1	2	3
Alarm call	Tick yes if you hear at least one alarm call, and no otherwise	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
First abrupt and massive sound likely reflecting convulsions	Write the time on the stopwatch when you first hear an abrupt and massive sound (e.g., 01:30)			
Abrupt and massive sound likely reflecting convulsions	Number of abrupt and massive bouts of sound heard (e.g., IIII II)			

General comments on the assessment of the gassing phase

Comments on the feasibility of the assessment:

Comments on the validity of the assessment:

At the end of the procedure

The assessment of poultry welfare at the end of the procedure starts when **all the modules are taken out of the CGU** and lasts for **10 min (START STOPWATCH)**.

The assessment is performed on all the modules from one CGU (i.e., one “batch” of CGU), and is repeated on a total of 3 batches.

		Batch		
Animal-based indicator	Scoring	1	2	3
Breathing	Number of birds breathing (e.g., ### II)			
Absence of body movement in the flock	Number of body movement (outside breathing movement, e.g., ### II)			
Other variable	Scoring	1	2	3
Additional gassing	Write down if the batch of birds was gassed again	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Back-up method	Number of birds on which a back-up method has been applied (including re-gassing if only certain individuals were gassed again)			

General comments on the assessment of poultry welfare at the end of the procedure

Comments on the feasibility of the assessment:

Comments on the validity of the assessment:

DON'T FORGET

The assessment is not complete; the second round of the welfare assessment during catching must be performed. Please refer back to the appropriate scoring sheets.



Behavioural repertoire

Animal-Based indicator	Definition (reference)
Alarm call	Variety of vocalisations or distress calls: Single or repeated short and loud shrieking (screaming) at high frequencies (EFSA, 2022)
Voluntary wing flapping	Bouts of fast, short flapping, rapid movement of the wings in a motion similar to attempted flight (Gerritzen et al., 2013; Gent et al., 2020; Rucinque et al., 2024)
Absence of body movement in the flock	Limp carcass, with the bird being completely still excluding visible breathing movements (adapted from Rucinque et al., 2024)
Breathing	Presence of movements of the beak or abdominal muscles around the cloaca (EFSA, 2013; Contreras-Jodar et al., 2022)
Escape attempt	Attempts to move, run or fly away from the situation (Graml et al., 2007)
Abrupt and massive sound likely reflecting convulsions	Sounds generated by birds, caused by involuntary movement of air through the body during convulsions (Martin et al., 2016)
Being held in inverted position	The bird is held inverted (upside down) by the legs (Sparrey et al., 2019)

Non-penetrative captive bolt stunners

Words of caution:

Before filling out the following form, please make sure that you have carefully read it in its entirety – including the behavioural repertoire (p42). Remember to print enough operator assessment sheets (p37-41) based on the number of operators. Ideally, all operators should be assessed once.

To complete the assessment, the following material is required:

- A pen
- A stopwatch
- Assessment recording sheets (p37-41, 1 copy per operator)

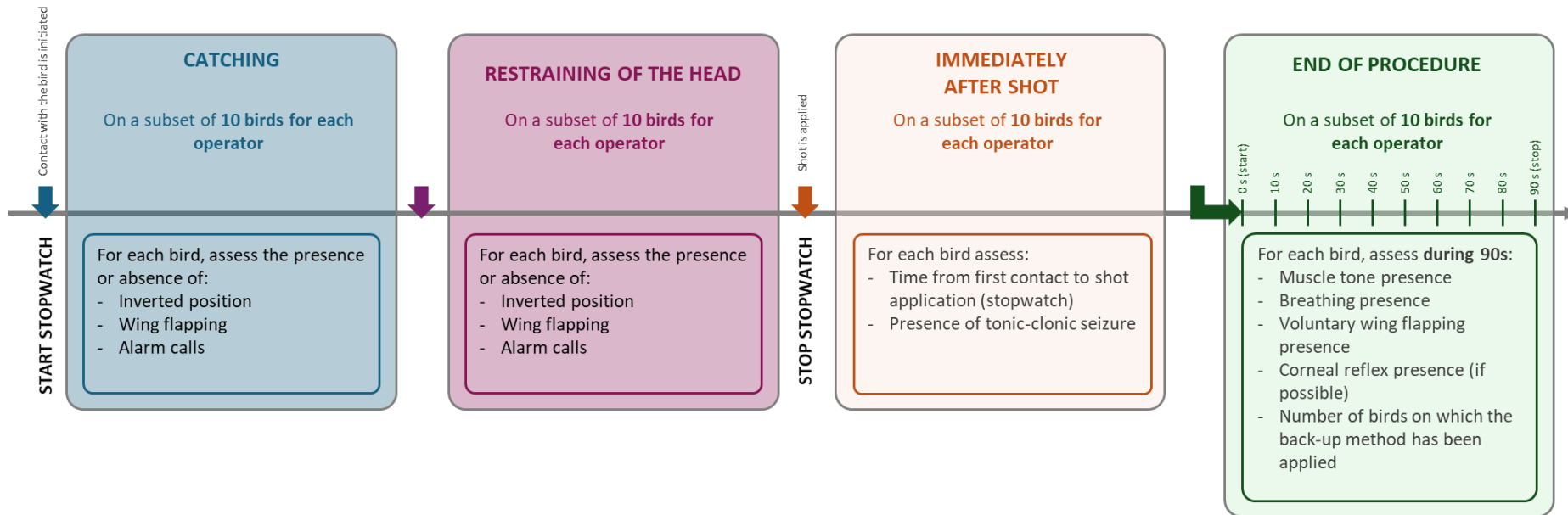
One form (p33-41) has to be filled per house to depopulate (meaning that 3 independent forms must be filled if 3 houses of the same farm have to be depopulated).

General information

Please complete the following table to the best of your ability.

Date			
Assessor's name			
Poultry type	<input type="checkbox"/> Laying hens	<input type="checkbox"/> Turkeys	<input type="checkbox"/> Others
	<input type="checkbox"/> Broilers	<input type="checkbox"/> Geese	
	<input type="checkbox"/> Ducks	<input type="checkbox"/> Guinea fowls	
Animal category	<input type="checkbox"/> Day-old chicks	<input type="checkbox"/> Production poultry	<input type="checkbox"/> Breeding poultry
Housing system	<input type="checkbox"/> Single-tier	<input type="checkbox"/> Multi-tier	<input type="checkbox"/> Cages
	<input type="checkbox"/> Free range		
Outdoor access	<input type="checkbox"/> Yes	<input type="checkbox"/> Covered veranda	<input type="checkbox"/> No
Ambient temperature (at killing spot, in °C)			
Flock size (approximate # of birds)			
Number of bolt stunners available			
Number of operators stunning with stunners			
Number of people available for catching and restraining			

Data collection overview



Repeat the assessment on another subset of 10 birds for each operator during the second half of the depopulation

General comments about the assessment

After you complete your assessment, please provide constructive feedback about the feasibility and validity of the different parts of the operator assessment. For feasibility, please provide feedback on the amount of time and effort it took to complete the assessment separately for catching, restraining, and end of procedure. Please also indicate the extent to which it was possible to assess several indicators at once. For validity, please provide feedback on the criteria you were asked to evaluate and whether you feel they were valid indicators of animal welfare during the depopulation by captive bolt stunners. If you feel that any important criteria were neglected in any part of the assessment, please also indicate it here. Any suggestions to improve the current proposal for welfare assessment are welcome.

General comments on the assessment of the CATCHING:

Comments on the feasibility of the assessment:

Comments on the validity of the assessment:

General comments on the assessment of the RESTRAINING:

Comments on the feasibility of the assessment:

Comments on the validity of the assessment:

General comments on the assessment of poultry welfare at the END OF THE PROCEDURE:

Comments on the feasibility of the assessment:

Comments on the validity of the assessment:

Operator ID (e.g., operator n°1)

Operator trained to use stunner

Yes No I don't know

Stunner type(s) (select all that apply)

Cartridge Propane Pneumatic Spring-loaded

Cartridge power (if applicable):

Colour label:

Caliber:

Stunner model(s) (e.g., Zephyr, CPK)

Type of bolt

Convex-head Flat-head Other (please specify):

Poultry restraint method

Manual Mechanical (please describe the tool used):

Print one assessment document (pages 37-41) for each operator. Record the following events on a **subset of 20 birds** for the operator specified above. 10 birds should be assessed at the beginning of the depopulation and 10 birds near the end of the depopulation. For example, at the beginning of the depopulation, assess 10 birds for operator 1, then 10 birds for operator 2, then 10 birds for operator 3. Near the end of the depopulation, start again with operator 1 and assess 10 birds, then 10 birds for operator 2, then 10 for operator 3. This assessment of 20 birds should be completed once per operator.

Catching (including potential restraining of the body)

Catching is defined as the period from **when contact of the bird is initiated (START STOPWATCH)**. This could be physical contact with a handler in the case of manual catching or contact with restraining equipment (i.e., plastic bins, towels) if CBS is applied in situ (i.e., on non-mobile birds). The catching period ends when the head of the bird is restrained.

Beginning of depopulation (the first 10 birds for this operator):		Bird									
Animal-based indicator	Scoring (Tick the appropriate box)	1	2	3	4	5	6	7	8	9	10
Inverted position	Was the bird inverted during catching?	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
		<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No
Wing flapping	Was wing flapping present during catching?	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
		<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No
Alarm call	Did the bird make alarm calls during catching?	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
		<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No
Near end of depopulation (the last 10 birds for this operator):		Bird									
Animal-based indicator	Scoring (Tick the appropriate box)	11	12	13	14	15	16	17	18	19	20
Inverted position	Was the bird inverted during catching?	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
		<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No
Wing flapping	Was wing flapping present during catching?	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
		<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No
Alarm call	Did the bird make alarm calls during catching?	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
		<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No

Restraining of the head

Restraint of the head is defined as the time between **when the beak of the bird is held until the application of the shot** from the CBS.

Beginning of depopulation (the first 10 birds for this operator):		Bird									
Animal-based indicator	Scoring (Tick the appropriate box)	1	2	3	4	5	6	7	8	9	10
Wing flapping	Was wing flapping present during catching?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Alarm call	Did the bird make alarm calls during catching?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Near end of depopulation (the last 10 birds for this operator):		Bird									
Animal-based indicator	Scoring (Tick the appropriate box)	11	12	13	14	15	16	17	18	19	20
Wing flapping	Was wing flapping present during catching?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Alarm call	Did the bird make alarm calls during catching?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

At the end of the procedure

STOP THE STOPWATCH once the shot has been applied and record the time.

Beginning of depopulation (the first 10 birds for this operator):		Bird									
		1	2	3	4	5	6	7	8	9	10
Variable	Write down the time on the stopwatch (i.e., 2m30s)	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec
Procedure time		___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec
Near end of depopulation (the last 10 birds for this operator):		Bird									
		11	12	13	14	15	16	17	18	19	20
Variable	Write down the time on the stopwatch (i.e., 2m30s)	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec
Procedure time		___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec	___min ___sec

For **each bird assessed**, the following indicators must be recorded immediately after the application of the shot:

Beginning of depopulation (the first 10 birds for this operator):		Bird									
		1	2	3	4	5	6	7	8	9	10
Animal-based indicator	Scoring										
Tonic-Clonic Seizure	Tick the appropriate box.	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent
Near end of depopulation (the last 10 birds for this operator):		Bird									
		11	12	13	14	15	16	17	18	19	20
Animal-based indicator	Scoring										
Tonic-Clonic Seizure	Tick the appropriate box.	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent	<input type="checkbox"/> Present <input type="checkbox"/> Absent

Suggestions for welfare assessment of poultry on depopulation site

Assess the following indicators **for a 90 s period** after the end of the tonic-clonic seizure OR immediately after the shot (if no seizures occur).

Near end of depopulation (the first 10 birds for this operator): Animal-based indicator		Bird									
		1	2	3	4	5	6	7	8	9	10
Vocalizations	Scoring	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present
		<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent
Muscle tone	Scoring	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present
		<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent
Voluntary wing flapping	Tick the appropriate box.	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present
		<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent
Breathing	Scoring	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present
		<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent
Corneal reflex*	Scoring	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present
		<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent
Other variable	Scoring	1	2	3	4	5	6	7	8	9	10
Second shot or back-up	Indicate if a second shot	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot
	OR a back-up method	<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up
	was needed (i.e., 1 st shot failed)	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A

*It may not be possible to assess if there is substantial damage to the head of the bird as a result of the procedure

Suggestions for welfare assessment of poultry on depopulation site

Assess the following indicators **for a 90 s period** after the end of the tonic-clonic seizure OR immediately after the shot (if no seizures occur).

Near end of depopulation (the last 10 birds for this operator): Animal-based indicator Scoring		Bird									
		11	12	13	14	15	16	17	18	19	20
Vocalizations		<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present
		<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent
Muscle tone		<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present
		<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent
Voluntary wing flapping	Tick the appropriate box.	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present
		<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent
Breathing		<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present
		<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent
Corneal reflex*		<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present	<input type="checkbox"/> Present
		<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent	<input type="checkbox"/> Absent
Other variable	Scoring	1	2	3	4	5	6	7	8	9	10
Second shot or back-up	Indicate if a second shot OR a back-up method was needed (i.e., 1 st shot failed)	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot	<input type="checkbox"/> 2 nd shot
		<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up	<input type="checkbox"/> Back-up
		<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A	<input type="checkbox"/> N/A

*It may not be possible to assess if there is substantial damage to the head of the bird as a result of the procedure

Behavioural Repertoire

Animal-Based indicator	Definition (reference)
Tonic-clonic seizure	Tonic seizures can be recognized by rigidly extended legs. Tonic seizures last for several seconds followed by a loss of muscle tone. Tonic seizures are followed by clonic convulsions which can be identified by wing flapping or rapid movement (tremor) of the wing, and leg kicking (EFSA, 2019, Delk, 2012).
Alarm call	Variety of vocalisations or distress calls: Single or repeated short and loud shrieking (screaming) at high frequencies (EFSA, 2022).
Voluntary wing flapping	Bouts of fast, short flapping, rapid movement of the wings in a motion similar to attempted flight (Gent et al., 2020, Gerritzen et al., 2013, Rucinque et al., 2024).
Absence of body movement	Limp carcass, with the bird being completely still excluding visible breathing movements (adapted from Rucinque et al., 2024).
Absence of muscle tone	Absence of tension in response to lifting the neck and opening the jaw (Erasmus et al., 2010).
Absence of corneal reflex	Absence of eye blinking or nictitating membrane movement in response to stimulation of the cornea (Erasmus et al., 2010).
Absence of breathing	Absence of movements of the beak or abdominal muscles around the cloaca (EFSA, 2013, Contreras-Jodar et al., 2022).
Being held in inverted position	The bird is held inverted (upside down) by the legs (Sparrey et al., 2014).

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About EURCAW-Poultry-SFA

EURCAW-Poultry-SFA is one of the four European Union Reference Centres for Animal Welfare. It focuses on poultry and other small farmed animals welfare and legislation, and covers the entire life cycle from hatch/birth to the end of life. EURCAW-Poultry-SFA's main objective is to scientifically and technically support the European Commission and Member States for implementation of welfare legislation. This includes:

- Directive 98/58/EC concerning the protection of animals kept on farms;
- Regulations 1/2005/EC and 1099/2009/EC concerning their protection during transport and slaughter;
- Directive 1999/74/EC laying down minimum standards for the protection of laying hens;
- Directive 2007/43/EC laying down minimum rules for the protection of chickens kept for meat production.

Partners

EURCAW-Poultry-SFA receives funding from DG SANTE of the European Commission and represents a collaboration between the following four partner institutions:

- ANSES, France
- IRTA, Spain
- ANIVET, AU, Denmark
- IZSLER, Italy

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Activities of EURCAW-Poultry-SFA

- Coordinated Assistance
Providing support, networking and Questions to EURCAW;
- Welfare indicators, Assessment & Good Practices
Identifying animal welfare indicators, including animal based, management based and resource-based indicators, that can be used to verify compliance with the EU legislation;
- Scientific and technical studies
Preparing Scientific Reviews of knowledge on welfare topics, identify research needs and perform scientific and technical studies to fill the gaps of knowledge;
- Training
Reviewing existing training activities and developing new training materials, webinars and knowledge pills for official inspectors and competent authorities;
- Communication and Dissemination
Increasing awareness of our outputs via the website, and newsletter.

Website and contact

EURCAW-Poultry-SFA's website offers relevant and actual information to support enforcement of poultry and other small farmed animals' welfare legislation.

We offer a 'Questions to EURCAW' service for official inspectors, policy workers, and other personnel providing advice or support for official controls of poultry and other small farmed animals welfare in the EU. For more information go to the Q2E webform available online [here](#) or <https://survey.anses.fr/SurveyServer/s/DSL/Queryw>. All Q2E answers are available [online](#)