EFSA's information meeting: identification of welfare indicators for monitoring procedures at slaughterhouses

Parma, January, 30th 2013

EFSA's approach to address the EU Commission mandate requesting a scientific opinion on monitoring procedures at slaughterhouses

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CAWA
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The Working Group

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Key points of the mandate

Nine groups: methods + species

1. Penetrative captive bolt for bovines
2. Head-only electrical stunning for pigs
3. Head-only electrical stunning for sheep and goats
4. Electrical water bath stunning for chickens and turkeys
5. Carbon dioxide stunning for pigs
6. Gas stunning methods for chickens and turkeys
7. Slaughter without stunning for bovines
8. Slaughter without stunning for sheep and goats
9. Slaughter without stunning for chickens and turkeys

Indicators to be investigated:

- For unconsciousness
- For death

Investigations should aim at:

ToR1. Sensitivity/specificity of the indicators
ToR2. Finding a minimum of 2 indicators per group
ToR3. Possible practical limitations
ToR4. Potential risk factors and welfare consequences
ToR5. Sampling protocols on the slaughterline

The 4 Scientific Opinions

The AHAW Panel agreed to address the 5 TOR's of the mandate by producing 4 Scientific Opinions, on indicators and their role in a monitoring protocol, divided by species:

1) Bovines (captive bolt and slaughter without stunning)

2) Pigs (head-only electrical and carbon dioxide)

3) Chickens and turkeys (electrical water bath, gas methods, slaughter without stunning)

4) Sheep and goats (head-only electrical and slaughter without stunning)

- How reliable are indicators in assessing the efficacy of the stunning procedure?

Approach to address the mandate:
3 sources of information (activities)

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1. Systematic Literature Review

2. Questionnaires to experts from practical field

3. Working group discussions (based on revision of previous EFSA's opinions)

ToR5. Sampling protocols on slaughterline

ToR4. Potential risk factors and welfare consequences

ToR1. Sensitivity / specificity
ToR2. Finding a minimum of 2 per group
ToR3. Possible practical limitations

The literature review will be carried out by a consortium led by the IOWA State University of Science and Technology.

They will look for studies describing the sensitivity, specificity and feasibility of indicators for consciousness and death

They will complete their review by **beginning of May 2013**

Two step activity:

Questionnaire 1 asks a selected group of potential experts about the indicators they use (type and practicability of the indicators, frequency and timing of the sampling procedures)

Q1 has started. We will distribute the questionnaire for the exercise in this meeting (afternoon session). **Answers to the questionnaire will be collected and discussed today.**

Questionnaire 2 will be an online survey conducted by an external communication company and will ask a larger group of users (food business operators and vet inspectors of all around EU) about the performance (i.e. sensitivity and specificity) of the indicators.

Q2 will be finished by **June 2013**

3. Working group discussions

The EFSA working group (WG) will collate all information from the literature review and the questionnaires.

The WG will summarise this in the 4 scientific opinions and propose conclusions and recommendations, which are to be evaluated & approved by the AHAW Panel.

The WG will use one species as example (bovines) and develop that opinion first.

The 4 draft opinions will be published on the EFSA's website for "public consultation" in the summer.

They will be ready by **November 2013**

Road map
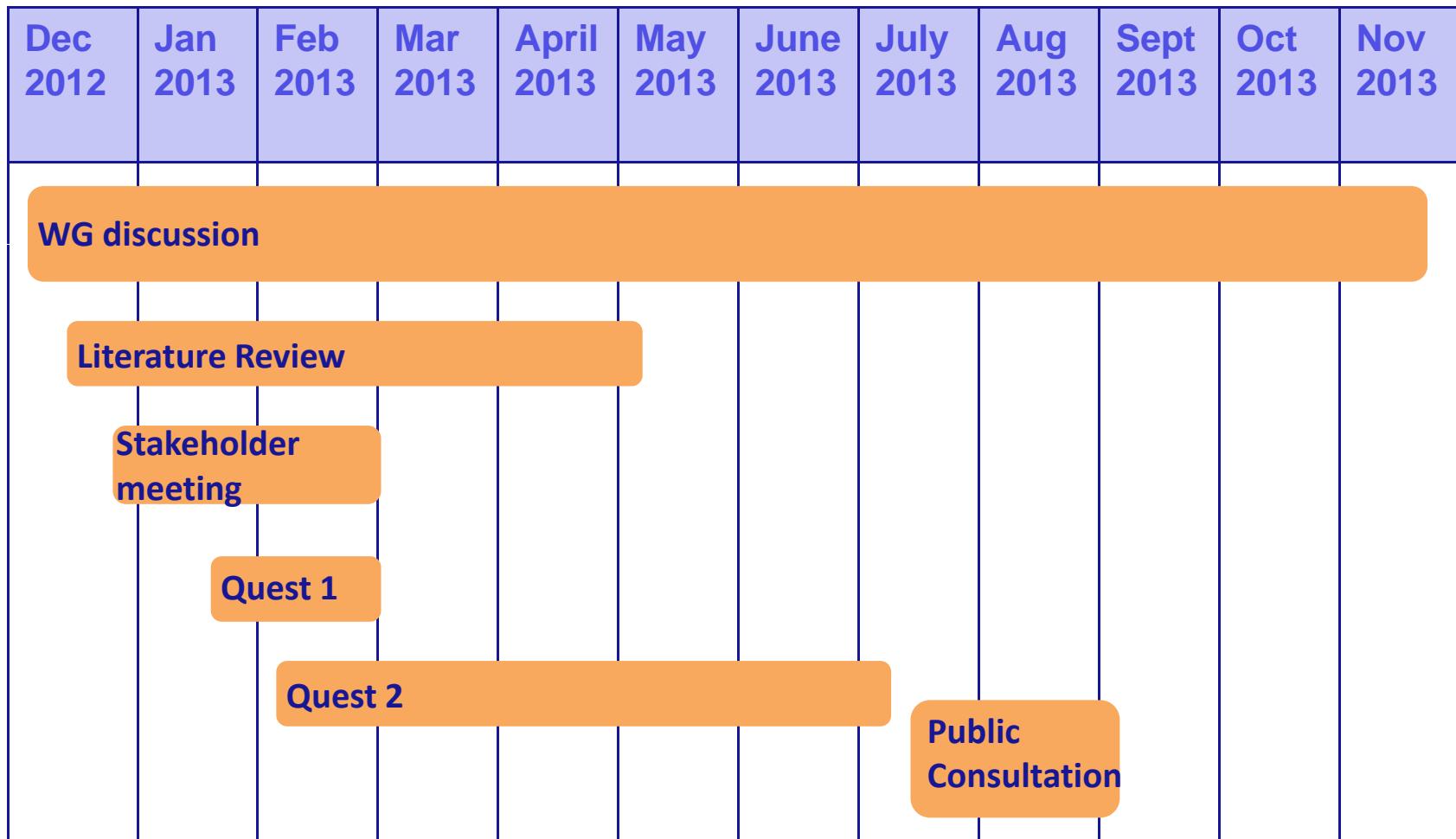
Dec 2012	Jan 2013	Feb 2013	Mar 2013	April 2013	May 2013	June 2013	July 2013	Aug 2013	Sept 2013	Oct 2013	Nov 2013

WG discussion

Literature Review

Stakeholder meeting

Quest 1

Quest 2

Public Consultation

Species specific part:

• Intro
  • Referring to the General Part
• Key indicators for unconsciousness (and death) of the species (at least 2)
  • Description of method to collect indicator
  • Sensitivity and specificity
  • Feasibility
• Risk factor analysis
  • What can go wrong when using these indicators?
• Sampling protocol
  • Where, when and how often?
• Conclusions & recommendations

Stakeholder involvement

- **Compilation of questionnaire 1**;

- **Contact details of people with practical experience for compilation of questionnaire 2**

Questionnaire on "Monitoring procedures at slaughterhouses"

NAME_____ LAST NAME_____

AFFILIATION_____

1. Have you personally assessed unconsciousness of the animals after stunning at slaughter?

    YES, AT PRESENT □   YES, IN THE PAST □   NO □

2. Have you personally assessed unconsciousness of the animals after killing without stunning?

    YES, AT PRESENT □   YES, IN THE PAST □   NO □

3. Have you personally assessed death of the animals at slaughter without stunning?

    YES, AT PRESENT □   YES, IN THE PAST □   NO □

FOLLOW-UP

EFSA will soon run a second questionnaire with the aim of getting information on the performance (i.e., sensitivity and specificity) of the indicators.
We will address such questionnaire to people with practical experience in monitoring the process of stunning and killing at slaughter (e.g., stunning/killing operators, welfare officer operators, official veterinarians at slaughterhouses ...).

Could you please indicate the name of one or more persons with that practical experience?

Name of one or more persons with practical experience, with contact (when available):

Name: ....contacts: ....

Name: ....contacts: ....

Name: ....contacts: ....

Compilation of questionnaire 1

- It is important to compile the "affiliation" field for screening of the outcomes (different expertise may lead to different interpretations);
- Please compile the questionnaire only if you have personal experience in assessment of unconsciousness or death. If you don't, please proceed to the "follow-up" section.

EFSA's Questionnaire on "Monitoring procedures at slaughterhouses"

NAME_____ LAST NAME_____

AFFILIATION_____

1. Have you personally assessed unconsciousness of the animals after stunning at slaughter?

   YES, AT PRESENT ☐   YES, IN THE PAST ☐   NO ☐

2. Have you personally assessed unconsciousness of the animals after killing without stunning?

   YES, AT PRESENT ☐   YES, IN THE PAST ☐   NO ☐

3. Have you personally assessed death of the animals at slaughter without stunning?

   YES, AT PRESENT ☐   YES, IN THE PAST ☐   NO ☐

Compilation of questionnaire 1

Combination of species and stunning methods as requested in the mandate

TABLE 1. SPECIES
Bovine
Pig
Sheep and goat
Poultry (only chickens and turkeys)
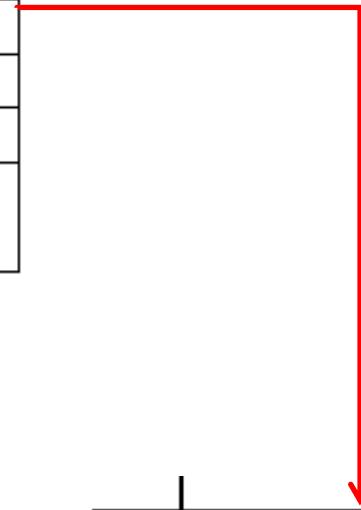
Table 2. STUNNING METHODs
Captive bolt
Head-only electrical stunning
Carbon dioxide
Electrical waterbath
CO_2 in 2 phases, CO_2 + inert gases, inert gases

Definitions

Unconsciousness:
A state of unawareness (loss of consciousness) in which there is temporary or permanent damage to brain function and the individual is unable to respond to normal stimuli, including pain (EFSA, 2004).

Death:
A physiological state of an animal, where respiration and blood circulation have ceased as the respiratory and circulatory centers in the Medulla Oblongata are irreversibly inactive. Due to the permanent absence of nutrients and oxygen in the brain, consciousness is irreversibly lost. (EFSA, 2004).

Compilation of questionnaire 1

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Table 3. INDICATORS of UNCONSCIOUSNESS	
1.	Immediate collapse
2.	Immediate onset and sustained absence of rhythmic breathing
3.	Immediate onset of tonic seizure, followed by clonic seizures
4.	No responses to a nose (muzzle) prick or ear pinch
5.	No responses to comb or toe pinching (poultry)
6.	No righting reflex (i.e. attempts to regain posture)
7.	No attempts to raise the head
8.	Loss of muscle tone in ears/jaws
9.	Irregular hind limb movement
10.	No regular gagging
11.	No wing flapping
12.	Completely relaxed body
13.	No vocalisation
14.	Dilated pupils
15.	No nystagmus (= no rotation of eye ball)
16.	Fixed eyes
17.	No palpebral reflex (= no blinking)
18.	No corneal reflex

Indicators will be explained in the next two presentations

Compilation of questionnaire 1

Table 4. INDICATORS of DEATH	
19.	Dilated pupils
20.	Absence of breathing
21.	Loss of muscle tone
22.	Cessation of spontaneous movement
23.	No response to nose prick
24.	Permanent collapse of the animal
25.	End of bleeding
26.	Absence of heart beating
27.	Absence of pulse
28.	Absence of gagging-gasping

Indicators will be explained in the next two presentations

Compilation of questionnaire 1

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Example of compilation of Table 5

COMBO ID:	SPECIES	STUNNING METHOD	INDICATOR/COMBINATION OF INDICATORS OF UNCONSCIOUSNESS*
A	Bovine	Captive bolt	1, 2, 7
B	Poultry - chicken	CO2 + inert gases	11, 12
C	Poultry – chicken and turkey	Electrical waterbath	7, 8, 11
D	Pig	Head-only electrical	1, 3, 8, 16
E			

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9.	Irregular hind limb movement
10.	No regular gagging
11.	No wing flapping
12.	Completely relaxed body
13.	No vocalisation
14.	Dilated pupils
15.	No nystagmus (= no rotation of eye ball)
16.	Fixed eyes
17.	No palpebral reflex (= no blinking)
18.	No corneal reflex

Compilation of questionnaire 1

Example of compilation of Table 6

COMBO ID:	SPECIES	INDICATOR/COMBINATION OF INDICATORS OF <u>UNCONSCIOUSNESS</u>*	INDICATOR/COMBINATION OF INDICATORS OF <u>DEATH</u>*
F	Bovine		
G			
H			
I			
L			

Table 3. INDICATORS of UNCONSCIOUSNESS	
1.	Immediate collapse
2.	Immediate onset and sustained absence of rhythmic breathing
3.	Immediate onset of tonic seizure, followed by clonic seizures
4.	No responses to a nose (muzzle) prick or ear pinch
5.	No responses to comb or toe pinching (poultry)
6.	No righting reflex (i.e. attempts to regain posture)
7.	No attempts to raise the head
8.	Loss of muscle tone in ears/jaws
9.	Irregular hind limb movement
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11.	No wing flapping
12.	Completely relaxed body
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6.	Permanent collapse of the animal
7.	End of bleeding
8.	Absence of heart beating
9.	Absence of pulse
10.	Absence of gagging-gasping

Compilation of questionnaire 1

PLEASE REFER TO THE ABOVE COMBOs ID (LETTERS A-E or LETTERS F-L) WHEN ANSWERING THE FOLLOWING QUESTIONS

6. Please indicate how long after stunning/sticking you use this indicator/combination of indicators (please provide your personal estimate; we are not looking for accurate figures).

COMBO ID:	.... **seconds** after stunning	..... **seconds** after sticking/bleeding
A	10	5
B		
C		
D		
E		
F		
G		
H		

combo id:	Species	Stunning method	Indicator/combination of indicators of unconsciousness*
A	Bovine	Captive bolt	1, 2, 7
B	Poultry - chicken	CO2 + inert gases	11, 12

Compilation of questionnaire 1

Table 8: put a cross on the line for giving your estimate of reliability of the indicators

8. How reliable is this indicator/combination of indicators to verify that the animal is unconscious/dead in your view? Please put a cross on each line (e.g.:□--**X**-------------□).

COMBO ID:	NOT RELIABLE --------------------VERY RELIABLE	COMMENTS
A	□------------------------------------**X**-------------□	
B	□--□	
C	□--□	
D	□--□	
E	□--□	
F	□--□	
G	□--□	
H	□--□	
I	□--□	
L	□--□	

Compilation of questionnaire 1

9. Please indicate how often, on a weekly basis, you use **sampling procedures** in order to assess unconsciousness/death of the animals (please provide your personal estimate, we are not looking for accurate figures).

COMBO ID:	NUMBER OF DAYS OUT OF SLAUGHTERING DAYS IN A WEEK	NUMBER OF ANIMALS OUT OF ANIMALS SLAUGHTERED IN A DAY
A	..3. days out of ..5.. slaughtering days in a week	..10 animals out of 100 animals slaughtered in a day
B		
C		
D		
E		
F		
G		
H		
I		
L		

Compilation of questionnaire 1

We will soon run a second questionnaire on a larger number of experts with practical experience. Please give your suggestions! (Also for people who did not compile this questionnaire)

FOLLOW-UP

EFSA will soon run a second questionnaire with the aim of getting information on the performance (i.e., sensitivity and specificity) of the indicators.

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Could you please indicate the name of one or more persons with that practical experience?

Name of one or more persons with practical experience, with contact (when available):

Name: ....**contacts:** ....

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Name: ....**contacts:** ....

Name: ....**contacts:** ....

Thank you very much for your attention and for your collaboration!!!