EFSA OPINION ON WELFARE OF CALVES ON FARM

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Scientific coordination of the WG on the welfare of calves

EUROPEAN FOOD SAFETY AUTHORITY

SCOPE OF THIS WORK

The European Commission requested EFSA to give an independent view on the protection of calves related to the welfare of calves:

Scope:
Bovine animals up to 6 months
Born on dairy farms – not in suckler herds

Calves kept on dairy farms for replacement
(females)

Calves for white veal
(unweaned calves for meat, mostly males)

GENERAL TERMS OF REFERENCE (TOR)

ToR 1	Describe the current husbandry systems
ToR 2	Describe the relevant welfare consequences
ToR 3	Define qualitative or quantitative measures to assess the welfare consequences (animal based measures (ABMs))
ToR 4	Identify the hazards leading to these welfare consequences
ToR 5	Provide recommendations to prevent, mitigate or correct the welfare consequences

See Section 2.1 of the Scientific Opinion for more details

SPECIFIC SCENARIOS

The welfare of male dairy calves raised for producing “white” veal meat and the risks associated with individual housing, insufficient space, and feed restriction (such as deprivation of iron and fibre)

The welfare of dairy calves and the risks associated with limited cow-calf bond.

EFSA to propose

Detailed, qualitative and quantitative ABMs and preventive and corrective measures

See Section 2.2 of the Scientific Opinion for more details

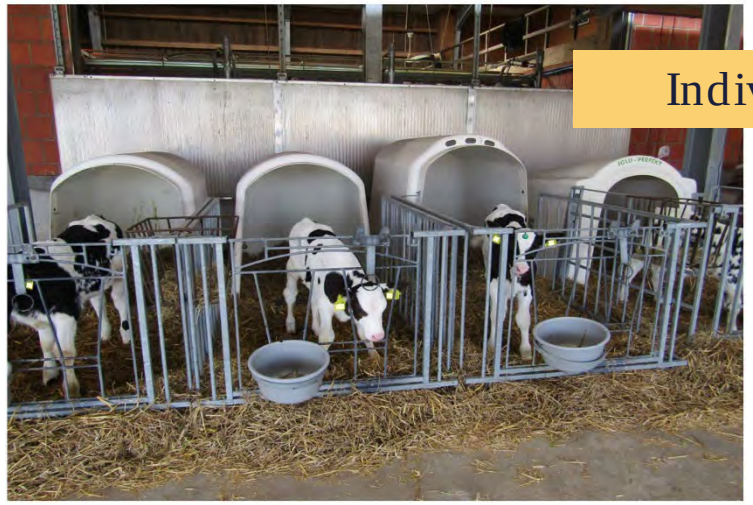
ABM: Animal Based Measure

RESULTS: HUSBANDRY SYSTEMS

RESULTS: MAIN HOUSING SYSTEMS DESCRIPTION (TOR 1)

DAIRY FARMS – BEFORE WEANING

Individual housing



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Small groups with milk feeding by bucket / trough

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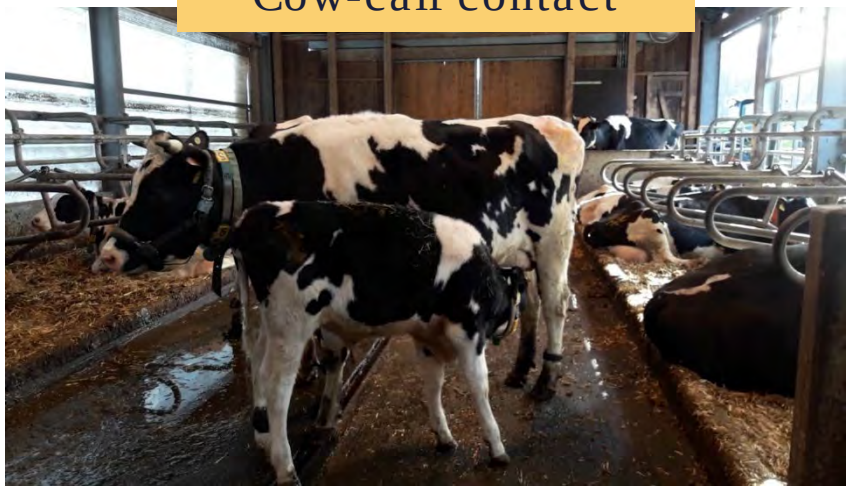
Cow-calf contact



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See Section 4 of the Scientific opinion for more details

RESULTS: MAIN HOUSING SYSTEMS DESCRIPTION (TOR 1)

DAIRY FARMS – AFTER WEANING TILL 6 MONTHS

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Fully or partially slatted floor without bedding

Pens with littered floor

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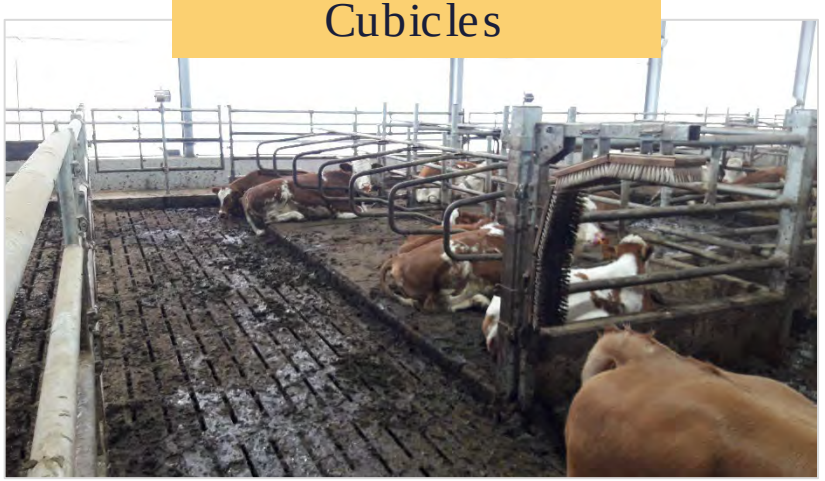
Cubicles



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See Section 4 of the Scientific opinion for more details

HUSBANDRY SYSTEMS VEAL CALVES

VEAL FARMS

Individual housing

Group housing – Small groups

See Section 4 of the Scientific opinion for more details

HUSBANDRY SYSTEMS VEAL CALVES

VEAL FARMS

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Group housing – large groups

See Section 4 of the Scientific opinion for more details

RESULTS: WELFARE CONSEQUENCES (TOR 2)

Welfare consequences
Respiratory disorders
Inability to perform exploratory or foraging behaviour
Gastro-enteric disorders
Inability to perform sucking behaviour
Group stress
Inability to chew and ruminate
Resting problems
Inability to perform play behaviour
Restriction of movement
Prolonged hunger
Isolation stress
Metabolic disorders
Separation stress
Heat stress
Handling stress

15 welfare consequences were identified as highly relevant

- ABMs (e.g., play behaviour)
- Hazards (e.g., insufficient space allowance per calf)
- Preventive measures (e.g., avoid individual housing systems)

For more details about the approach, see the EFSA Scientific Opinion on methodological guidance for the development of animal welfare mandates in the context of the Farm to Fork Strategy

HUSBANDRY SYSTEMS

RECOMMENDATIONS

- Adequate colostrum management
- Provision of large milk amounts (~ 20% body weight per day until at least 4 weeks of life)
- Keeping calves from an early age onwards in stable groups
- Long roughage in racks
- Water through an open surface
- Access to shade or insulated shelters
- Provision of brushes
- Good ventilation
- Transport events, commingling and regrouping should be avoided

Further quantitative recommendations provided for grouping, space, iron and fibre

See Section 4.15 of the Scientific Opinion for more details

SPECIFIC SCENARIO 1 VEAL CALVES: REQUIREMENTS OF SPACE, GROUP SIZE, IRON, AND FIBRE

SPECIFIC SCENARIO 1: VEAL CALVES – LIMITED SPACE

WELFARE CONSEQUENCES

Restriction of movement

Resting problems

Inability to perform play behaviour

RELATIONSHIP BETWEEN SPACE AND BEHAVIOUR

SPACE ALLOWANCE	IMPACT ON BEHAVIOUR
1.8 m^2	Higher probability of respiratory disease
2 m^2	Reduced lying times
3 m^2	Resting in a relaxed position
20 m^2	Locomotor play behaviour*

*estimated by Expert Knowledge Elicitation (EKE)

See Section 4.16.2.5 of the Scientific Opinion for more details

SPECIFIC SCENARIO 1: VEAL CALVES – LIMITED SPACE

RECOMMENDATIONS – SPACE ALLOWANCE

Space allowance

- Current minimum space allowance (i.e. 1.8 m^2 per animal) should be increased to at least 3 m^2 per animal to increase time spent lying in a relaxed posture and likely an increase in general activity
- At least 20 m^2 per animal to allow for full locomotor play behaviour

See Section 4.16.2.5 of the Scientific Opinion for more details

SPECIFIC SCENARIO 1: VEAL CALVES – GROUPING

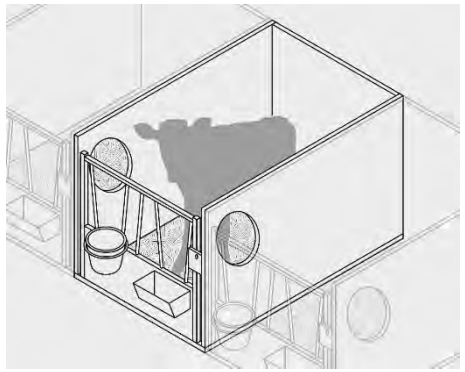
INDIVIDUAL VS GROUP HOUSING

WELFARE CONSEQUENCES

Isolation stress

Impaired social behaviour development

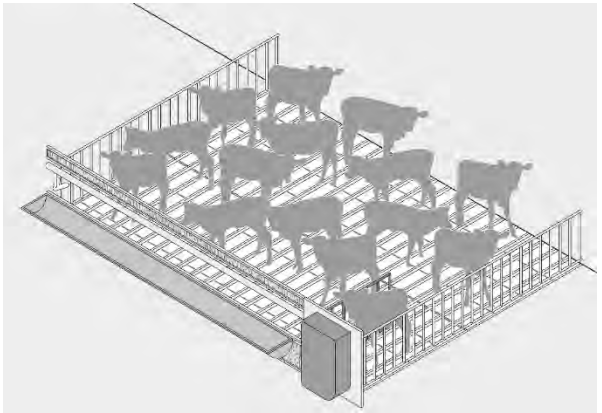
Impaired learning ability

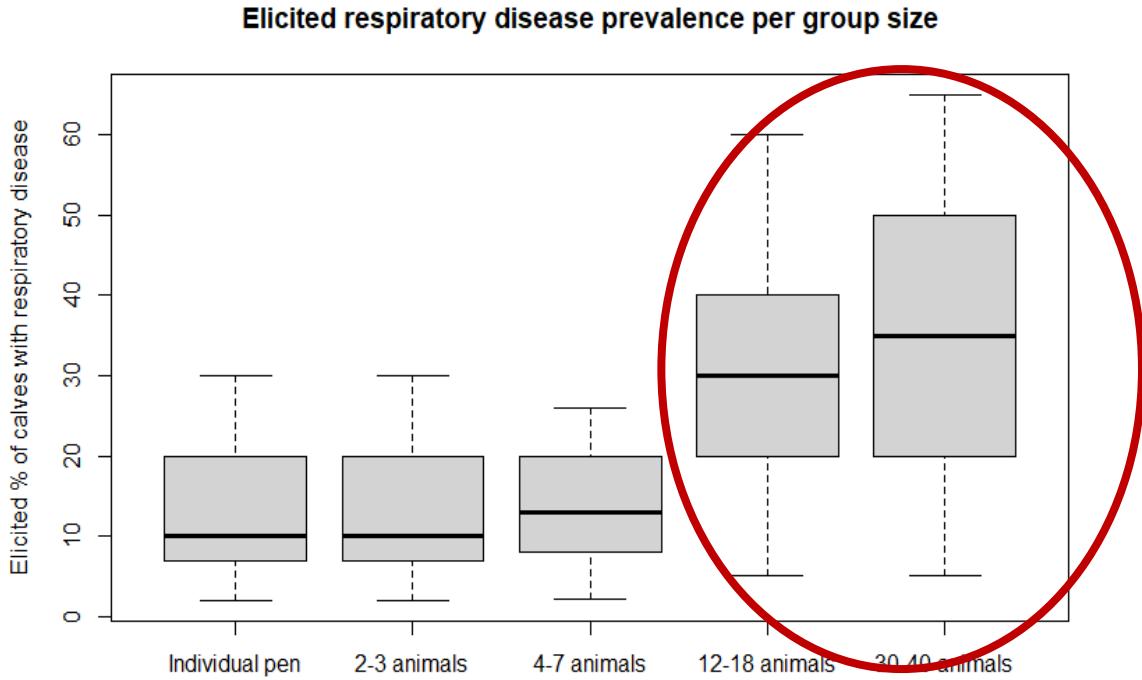


WELFARE CONSEQUENCES

Group stress

Respiratory disorders





See Section 4.16.1.8 of the Scientific Opinion for more details

SPECIFIC SCENARIO 1: VEAL CALVES – GROUPING

RECOMMENDATIONS

- Unless they have contact with the dam, calves should be moved to and kept in pairs or small groups (2-7 animals) within the first week of life (i.e., before day 7)
- Calves should not be kept individually at the veal unit. Veal calves should be housed in groups of ~ 7 animals at least until the age of 6 weeks
- Groups should be kept stable as much as possible
- Aspects such as ventilation and pen air volume should be well managed, but further research is needed for specific recommendations on these parameters

See Section 4.16.1.8 of the Scientific Opinion for more details

SPECIFIC SCENARIO 1: VEAL CALVES – FIBRE

Standard diet of white veal calf
Milk + mostly corn
Limited fibre intake

WELFARE CONSEQUENCES

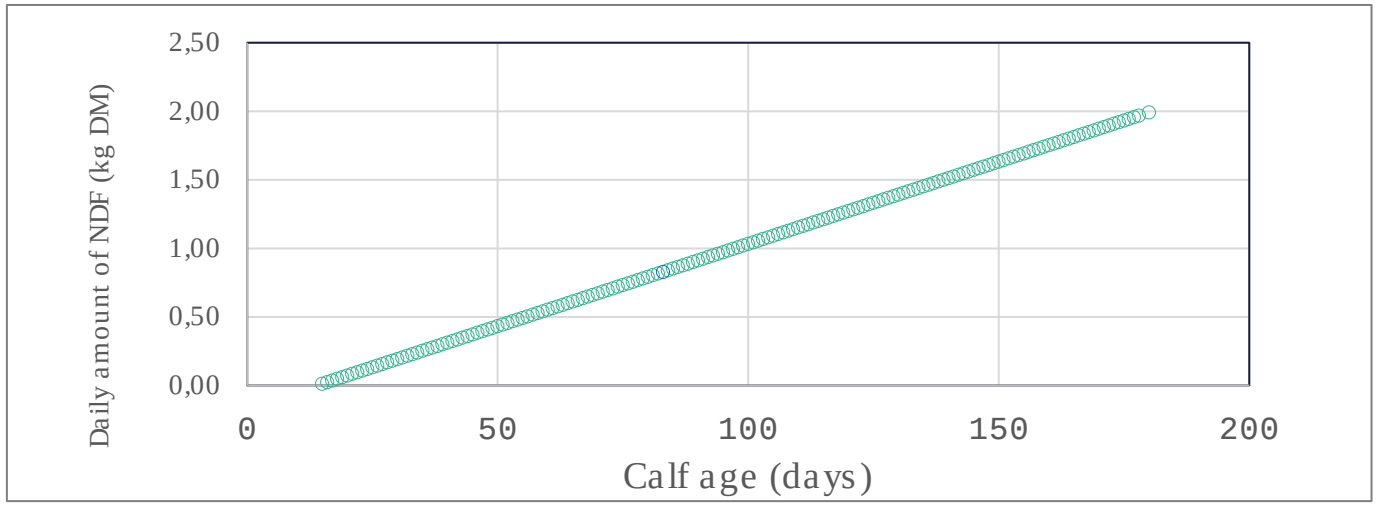
Inability to chew and ruminate

Gastro-enteric disorders (e.g. abomasal ulcers)

See Section 4.16.4.2 of the Scientific Opinion for more details

RECOMMENDATIONS

Age // weight (LW)	2 - 8 weeks / 40 kg	9 – 18 weeks / 80 kg	19 - 25 weeks / 130-300 kg	TOTAL
Kg NDF DM	11	65	90	166



SPECIFIC SCENARIO 1: VEAL CALVES – IRON

Natural variation in haemoglobin levels during first weeks of life

WELFARE EFFECTS

Haemoglobin concentration (mmol/L)	4.34	Higher infection rates
	4.5	Current minimum haemoglobin value
	4.6	Impaired weight gain
	5.3	Increased cardiovascular and respiratory responses to physical effort
	> 6	No welfare effects observed

RECOMMENDATIONS

- Avoid Hb < 5.3 mmol/L in veal calves
- Collection, record keeping and accessibility of haemoglobin data from white veal production for assessment of welfare effects of Hb values between 4.5 and 5.6 mmol/L
- Diet of veal calves should be composed of feedstuff high in iron such as roughage (e.g., hay)

See Section 4.16.3 of the Scientific Opinion for more details

SPECIFIC SCENARIO 3 – LIMITED COW-CALF CONTACT

SPECIFIC SCENARIO 3 RISKS OF LIMITED COW CALF BOND

CALF REARING SYSTEMS

Artificial rearing

- Conventional system
- Separation at birth

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Dam or foster cow rearing

- Not common
- Duration of contact varies
- Foster cow rearing: 2-3 calves/cow

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See Section 4.18.4 of the Scientific Opinion for more details

SPECIFIC SCENARIO 3 – RISKS OF LIMITED COW CALF BOND

DAM REARING COMPARED TO INDIVIDUAL HOUSING

POSITIVE WELFARE EFFECTS OF CONTACT

Higher calf vitality

More developed social behaviour

Higher weight gain

Reduced cross-sucking behaviour

NEGATIVE WELFARE EFFECTS

Separation stress

See Section 4.18.8 of the Scientific Opinion for more details

SPECIFIC SCENARIO 3 RISKS OF LIMITED COW CALF BOND

RECOMMENDATIONS

- The calf should be kept with the dam for a minimum of ~24 hours and be housed with another calf after that.
- Prolonged cow-calf contact should increasingly be implemented due to the welfare benefits for calf and cow. In the future, calves should have contact with the dam during the whole pre-weaning period.
- Further research is needed to:
  - better understand how to implement cow-calf contact in a larger scale
  - identify the best options in practice
  - define best practices for foster-cow rearing

See Section 4.16.1.8 of the Scientific Opinion for more details

SUMMARY

Avoid individual housing

Keep animals in small groups of 2-7 animals of similar age for social behaviour.

Space allowance

Calves need to have enough space to be able to rest in a relaxed position - at least 3m^2 per animal.

To be able to perform full play behaviour they need 20 m^2.

Comfortable bedding

For their comfort provide a deformable bedding.

Cow-calf contact

Cow and calf need to be together for at least 1 day after birth.

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