General information	
PPP-number	AF 18024
Title	OPTIMIZE AND SAFEGUARD WELFARE OF FARMED PANGASIUS AND ATLANTIC SALMON: ANIMAL-BASED CRITERIA AND LABELLING FOR CONSUMERS
Theme	
Implementing institute	Wageningen Livestock Research
Project leader research (name + e-mail address)	Hans van de Vis hans.vandevis@wur.nl
Coordinator (on behalf of private partners)	Emiel Beekwilder emiel.beekwilder@ahold.com
Project-website address	-
Start date	1-1-2019 (receipt of grant letter on 13-5-2019)
Final date	31-12-2021

Approval by the coordinator of the consortium The annual report must be discussed with the coordinator of the consortium. The "TKI's" appreciate additional comments concerning the annual report.	
Assessment of the report by the coordinator on behalf of the consortium:	X Approved ☐ Not approved
Additional comments concerning the annual report:	none

Summary of the project	
Problem definition	Welfare labelling of farmed pangasius and Atlantic salmon products for consumers of a large retailer such as Albert Heijn is an adequate response by the sector, i.e. the consortium of companies involved in the proposed project, to previously described societal developments. However, creating a new label for consumers is not desirable, considering the number of existing labels and thereby the need to avoid confusion. For reasons of feasibility, a welfare label for consumers should be an add-on to a well-known existing label for consumers such as ASC. This add-on can be a dual label of ASC and Beter Leven Keurmerk of the Dutch Society for the Protection of Animals or an ASC label endorsed by the latter NGO/the Beter Leven Keurmerk.
Project goals	The objective is to develop criteria and a consumer label for welfare of farmed pangasius and Atlantic salmon, as an adequate response to current societal views on sustainability. It should be noted that the aim is not to develop a new consumer label, which is likely to cause confusion or it will not be noticed among the plethora of existing labels. We aim at an add-on module for ASC which will result in a dual label of ASC and Beter Leven Keurmerk or a Beter Leven Keurmerk endorsed ASC label. At present Beter Leven Keurmerk, which is a private standard and label of the Dutch Society for the Protection of Animals, only covers land animals.

Results

Planned results 2019	The planned results for 2019 are: **Work package 1 Risk assessment pangasius** *Deliverable 1.1 A lists of ranked hazards for production of pangasius that are ranked* *Milestone 1.1 Knowledge gaps with respect to animal-based and input-based criteria to evaluate welfare during production will be established* **Work package 2 Stunning and killing of pangasius** - **Work package 3 Welfare module and consumer label for pangasius** - **Work package 4 Welfare module and consumer label Atlantic salmon** - **Work package 5 Management and communication** *Deliverable 5.1 Brief internal reports every three months* *Deliverable 5.2 Report first year*
Achieved results 2019	**Work package 1 Risk assessment pangasius** *Deliverable 1.1 A lists of ranked hazards for production of pangasius that are ranked* A list of hazards that (may) occur throughout the production of pangasius at one of Vietnam's leading producers is stablished. A risk assessment of processes throughout the production chain has been drafted. Data are available to carry out the ranking of hazards. The ranking will be finished in 2020. *Milestone 1.1 Knowledge gaps with respect to animal-based and input-based criteria to evaluate welfare during production will be established* Animal-based welfare indicators are typically parameters describing the fish themselves and their behaviour, related to conditions during production. Input-based indicators specify conditions to which the fish are subjected, e.g. water quality. The literature search and interviews with staff members of one of Vietnam's leading producers revealed that the number of scientific reports on physiological and behavioural studies on input- and animal-based criteria is very small or not available at all. Hence, our knowledge on the needs (nutrition, water quality, behavioural freedom, health and safety) and is limited. This implies that criteria used for input- and animal-based criteria are based on production data available at one of Vietnam's leading producers and research institutes in Vietnam. Knowledge on diseases in pangasius is probably an exception, as text books in Vietnamese on this subject are available. **Work package 2 Stunning and killing of pangasius** The recommended approach of the European Food Safety Authority (EFSA) was used in our experiments. To assess stunning and killing of fish, a two-step approach is recommended by EFSA. These steps are: 1) assess stunning and killing under laboratory conditions by using EEG

	and ECG registrations in combination with behaviour 2) assess stunning and killing in a commercial setting or under similar conditions to establish whether the criteria that are established in step 1 are met. STEP 1 More data on stunning and killing of pangasius by registration of EEGs, ECGs and behavioural observations have to be collected to establish specifications for an immediate stun without recovery until death occurs and therefore no statistical processing of data was carried out. Therefore, only preliminary results are presented. Electrical stunning after dewatering Our data suggest that 150 V 50 Hz across the electrodes for 1 second may not be sufficient for an immediate stun in pangasius as tonic and clonic cramps were not observed in behaviour. When 200 V 50 Hz ac was applied for 1 second tonic and clonic cramps were observed in pangasius, which suggests that consciousness was lost immediately. EEG and ECG data are not presented in this report, as more data need to be collected. Electrical stunning of pangasius in water A field strength of 3.33 V/cm in water (200 V across electrodes at 60 cm distance) may be sufficient for an immediate stun in pangasius, as clonic and tonic cramps were observed in behaviour. EEG and ECG data are not shown, as more data have to collected. STEP 2 The assessment of the commercial stunner used at one of Vietnam's leading producers showed that this equipment is not in accordance with the guidelines of EFSA (2018), as the fish were exposed to a fall when they were placed in the stunner. The fish were also exposed to pre-shocks and a large proportion of the fish enter the stunner tail-first. Behavioural observations showed that after the application of a throat cut as killing method the pangasius may have regained consciousness. **Work package 3 Welfare module and consumer label for pangasius** The procedure needed for the standard setting procedure was prepared. The terms of Reference (ToR) are in preparation. The Technical Advisory Group (TAG) was formed and the public consultation was started. Documents needed for this stage were prepared. The Technical Working Group started in 2019. . **Work package 4 Welfare module and consumer label Atlantic salmon** The description of work done for work package 4 is the same as work done for work package 3. **Work package 5 Management and communication** A start meeting was held in April 2019 and minutes were made. The first progress meeting was held in October 2019. Also minutes of this meeting were prepared. A newsletter was prepared and sent to stakeholders to inform them about the start of the project. Four internal reports were finalized.
Planned results 2020	The planned results for 2020 are: **Work package 1 Risk assessment pangasius**

	Part of Deliverable 1.1: ranking of welfare hazards **Work package 2 Stunning and killing of pangasius** Deliverable 2.1 Specifications for effective stunning and killing needed to design and construct a stunner or modify an existing one **Work package 3 Welfare module and consumer label for pangasius** - **Work package 4 Welfare module and consumer label Atlantic salmon** - **Work package 5 Management and communication** *Deliverable 5.1 Brief internal reports every three months* *Deliverable 5.3 Report second year*

Deliverables/products in 2019 (provide the titles and /or a brief description of the products/deliverables or a link to a website.

Deliverable 1.1 A lists of ranked hazards for production of pangasius that are ranked
A list of hazards that may occur throughout the production of pangasius at one of Vietnam's leading producers was prepared. A risk assessment of the production chain is finished. The last part, i.e. the ranking of hazards, will be finished in 2020.

Milestone 1.1 Knowledge gaps with respect to animal-based and input-based criteria to evaluate welfare during production will be established
Criteria used for input- and animal-based criteria are based on production data are available. These criteria are not based on physiological and behavioural studies. Knowledge on diseases in pangasius is probably an exception, as text books in Vietnamese on this subject are available.

Deliverable 5.1 Brief internal reports every three months

Internal report 1 inventory of current practices one of Vietnam's leading producers for the production of farmed pangasius

Internal report 2 manual to perform a risk assessment

Internal report 3 risk tables for risk assessment

Internal report 4 WP 1 stunning and killing of pangasius
WP2 risk assessment-results obtained in the first year

Deliverable 5.2 Report first year (this report)

Scientific articles:

None

External reports:

Annual report of work done in 2019.
Articles in professional journals/magazines: None
(Poster) presentations at workshops, seminars, or symposia. None
TV/ radio / social media / newspaper: None
Remaining deliverables (techniques, devices, methods, etc.): Deliverable 1.1: the part on the ranking of hazards