Code of Practice for Safely Conducting Tastings of Cultivated Meat and Seafood Prior to EU Approval 2.0

Foreword

Since the introduction of the initial Code of Practice, several controlled tastings of cultivated meat have been successfully conducted in the Netherlands by companies Meatable (April 2024) and Mosa Meat (July 2024, June and September 2025). These tastings were carried out in line with the principles set out in the initial Code of Practice and have demonstrated that, under controlled conditions, such tastings can be organised in a safe and responsible manner. The overall process has been reviewed by Wageningen Food Safety Research (WFSR), providing additional validation of the approach taken. Furthermore, insights gained from the development and application of the Code of Practice for innovative fermentation (2025) have been incorporated. Building on these practical experiences and learnings, the present document reflects an updated and refined Code of Practice (version 2.0), aimed at further strengthening the clarity, consistency and robustness of the framework for safely conducting tastings of cultivated meat and seafood prior to EU market authorisation.

1. Introduction

The ability to successfully grow meat from a sample of cells was pioneered by a consortium of Dutch researchers brought together by funds provided by the Dutch government. This innovation was debuted to the world in 2013 and started a race around the globe that today has resulted in over 110 independent companies worldwide and more than $3B USD in private investment.

To realise the economic and environmental potential of this new technology in the Netherlands, the parliament awarded €60M in public money to build a thriving cellular agriculture ecosystem, based on a positive advice of the Advisory Committee of the National Growth Fund (NGF) on 22 October 2022. The Ministry of Agriculture, Fisheries, Food Safety and Nature (LVVN) submitted the plan. A foundation (stichting), under the name of Cellular Agriculture Netherlands (CAN) has its main task to coordinate and implement the plan approved, in close cooperation with the Ministry of LVVN. These public funds will be used to create the conditions necessary through education, research and scaling up, to attract the researchers, workforce, entrepreneurs, and private capital necessary to make the Netherlands a global leader in the cellular agriculture space.

In line with this ambition, clear guidelines on how to conduct tastings / sensory evaluations (hereafter referred to as 'tastings') of new products[1] are an important enabling factor for the optimalisation of the products and in the end the development of the sector. A majority of the Dutch House of Representatives (Tweede Kamer) affirmed this as a priority by adopting a motion (Motie De Groot-Valstar KST27428383) requesting the government to enter into consultation with companies developing foods based on animal cell-culture (e.g. meat and seafood) to enable pilot scale tastings of their novel products under controlled and safe conditions. As such, this document outlines a process, including learnings during the two years in which these guidelines were followed and tastings were organised, for companies to get approval from an independent Expert Committee within CAN to conduct tastings and a code of practice to follow to ensure safety for prospective tasters.

2. Initial Considerations

In the European Union, newly developed foods need to be evaluated according to relevant European legislation before being approved to go to market, such as novel foods (EU novel food Regulation) and food produced from GMOs (EU GM food and feed Regulation).

In principle, such nutrients are not expected to jeopardise the health of volunteer consumers[2]. Cell culture may require additional constituents such as modulators of growth or differentiation that can be low molecular weight compounds or substances of a proteinaceous nature. Safety of these would need to be assessed, taking into account levels of potential intake versus safety profiles.

Whereas novel foods are typically evaluated by EFSA for chronic consumption, tasting sessions are intended for a single or a few times only and in limited amounts. This involves a more proportionate risk assessment approach, versus a more extensive procedure done by EFSA.

As such, the risk assessment of cultivated meat and seafood tastings can in essence follow the lines of argumentation of EFSA guidance (EFSA, 2016), albeit in a leaner form. Below, the necessary information for a tasting session is presented in an itemised way. A producer of food from cultured animal cells drafts an application for tasting sessions.

3. Roles and responsibilities

In the context of this Code of Practice for the safe tasting of cultivated meat and seafood prior to market authorisation, there are several parties involved with different roles and responsibilities:

[1] These products are governed by EU regulations, which require a risk assessment by EFSA before European market introduction can be authorised.

[2] See for further information: Food safety aspects of cell-based food (fao.org)

- Applicant: a company developing cultivated meat or seafood with a demonstrated presence in the Netherlands (e.g. with founders, employees, assets or operations), responsible for requesting a tasting of a cultivated meat or seafood by submitting an application with the relevant supporting information to the Expert Committee (via CAN) and carrying out the tasting after approval in a safe and responsible way

- Expert Committee: a committee of experts in several relevant domains that assesses the submission for tastings of a cultivated meat and seafood and that is responsible for deciding whether or not to approve it

- Cellular Agriculture Netherlands: the foundation and organization engaged in the development of the cellular agriculture sector and the independent host of the Expert Committee, also providing supporting service to facilitate the assessment of submissions

- Ministries of Agriculture, Fisheries, Food Security and Nature (LVVN) and Health, Welfare and Sport (VWS): the ministries that are responsible for setting up the pilot that facilitates the tastings of cultivated meat and seafood in a safe and responsible manner

- Wageningen Food & Biobased Research (WFBR): the organization tasked with the evaluation of the pilot for the process of the tastings of cultivated meat and seafood

4. Information supporting safety of the cultivated meat and seafood intended for tastings

A structured risk assessment which consists of several steps is required. The analysis should result in a comprehensive overall synthesis of the direct risks for the research subjects in this study. The risk considerations on the various issues listed below should be supported by up-to-date information and should be clearly described.

a. Description of the food from cultivated animal cells:

- type of cells
- animal origin, history of consumption of the source
- Deliberate modification of the cellular genome, if any. When GMOs are used in the production process, the company must have the proper permit from the Ministry of Infrastructure and Water Management overseeing the contained use of GMOs, and act accordingly. The final product does not contain viable GMO cells[3]

[3] This means that an applicant has validated that a GMO has been killed before it leaves the contained space. The company can theoretically substantiate this (e.g. with literature references) with reasoned argumentation that/why no living GMO cells are (or are no longer) present in the product. One of the examples is a validated

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b. Composition and production process of the cultivated meat or seafood:

Description of the culture process, including production location and all constituents of the culture media, including growth factors, antibiotics, and other constituents. Constituents that are legally forbidden in food shall also not be permitted in the tasting sessions.

Providing a flow diagram, as well as a summary of main risks and their mitigation from a HACCP perspective or a HACCP plan or certification.

Information on relevant conservation and storage methods for the end product until tasting

c. Documented safety information for all constituents:

- Identity, chemical and/or biological structure, composition
- Health-based guidance values from authoritative sources (EFSA, US-FDA, JECFA, EMA, etc.) or (for compounds with little safety information) the applicable TTC value[4]
- Substances with known or suspected genotoxic activity cannot be used
- The allergenicity risk associated with the consumption of the cultured product is considered not to be dissimilar to the source because biochemical characteristics of cultured cells are similar or identical to those of the same cells in the source tissue (e.g. chicken, beef, etc). While it is considered that newly introduced proteinaceous material can have allergenic properties, companies may minimize the risk by requesting all persons who intend to taste to declare in writing that they do not suffer from known allergies. The evaluation of allergenicity forms part of the risk assessment by the Expert Committee

d. Content of the relevant components[5] in the product to be tasted.

- Microbiological status (measured[6]); the microbiological status should be in line with

method involving freezing, with a report supporting this.

[4] Use of the Threshold of Toxicological Concern (TTC) approach for constituents for which limited data are available may be instrumental. https://www.efsa.europa.eu/en/efsajournal/pub/5708

[5] Typical contaminants such as heavy metals, mycotoxins, PCBs, pesticides etc as per EC Regulation No 1881/2006 setting maximum levels for certain contaminants in foodstuffs are not expected to be present and need no consideration; https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:02006R1881-20150731

[6] https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32005R2073 foodstuffs; https://eur-

(Regulation EC No. 2073/2005 on microbiological criteria for (meat in) foodstuffs

- Amount to be ingested
- 'Calculated' or 'measured' content values
- Total amount per person and nominal amount per kg body weight (@ 70 kg)

e. Condensed information

All information for the Expert Committee should be condensed in a **Table,** including information from paragraphs 5c and 5d, and identifying the intake / exposure for each constituent:

Constituent	**Total intake per person**	**Intake per kg of body weight**	**'calculated' or 'measured'**	**Safety level (ADI, TDI, TTC … etc)**	**Intake versus safety level:** **Green** = safe **or** **Orange** = needs consideration

f. Any additional information can be requested by the Expert Committee. The Committee can request the applicant to discuss the scope of any additional information and strives to request additional information in one instance.

5. Participants

- All participants should be adults, in apparent good health and with no known allergies or underlying diseases and will not be pregnant (self-declared).

- Participation is strictly voluntary and on invitation only.

lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32005R2073

- Informed consent needs to be obtained from the participant prior to a tasting session which will be arranged and properly documented by the applicant.

- In such informed consent, the applicant will inform participants about the type of cultivated meat or fish they will taste and provide instructions in case of any adverse events (as outlined in paragraph 7).

- The EU General Data Protection Regulation (GDPR) applies.

- Participants will not be remunerated.

- To safeguard anonymity and comply with personal data protection requirements participant data collected during tastings shall be anonymised by separating participant identification numbers from names.

6. Information on the tasting session(s) of the cultivated meat or seafood intended for tasting

The applicant requesting approval for tastings will keep records of the tasting session(s) as follows:

- Description of the setting: time, day, location (for instance, premises of the producer, or a facility dedicated to sensory evaluation; public access will be excluded).
- List of participants.
- Number of persons (maximum of 30 per tasting session).
- Cooking of the cultivated meat or seafood, recipe, amount to be tasted.
- Availability of an emergency response officer (BHV) and a medical hotline.
- Registration of any adverse events occurring up to two weeks after the tasting event.
- Safety information as per the Table in paragraph 4.e.
- All information provided by the applicant for review by the Expert Committee is treated as confidential and proprietary.

7. The process in case of adverse events

In case of an adverse event after a tasting, the following procedure is followed:

- The participant of a tasting informs the applicant of any adverse event within two weeks after the tasting.

- The applicant informs a participant that they need to contact their own General Practitioner in case of

any adverse event.

- The applicant subsequently liaises with the participant experiencing a possible adverse event to determine potential root causes or other variables or factors that are relevant to a possible adverse event.
- The applicant informs CAN within two working days of being notified of an adverse event, CAN will in turn inform all relevant authorities (LVVN and VWS).
- The applicant liaises with CAN on any further actions to be taken.

8. The procedure of the tastings

The tastings can only be held in a controlled setting as described by the company: 'controlled environments' are suitable for food preparation; are either owned, leased or rented by the applicant company and are not accessible to the general public during tasting events.

- The applicant provides (condensed) information as per the "Information supporting safety of the cultivated meat or seafood intended for tasting".
- The Table informs if any of the constituents may be ingested at levels above the initial threshold (**Orange** in the Table).
- The full product to be tasted will be assessed and the constituents that score **Orange** in the Table will be evaluated with extra attention. For constituents of concern, the intake will be appraised versus the established levels without concern (ADI, TDI, TTC etc). The Expert Committee may take into account the short duration of the exposure: ADI, TDI, TTC values are typically derived for lifetime exposure whereas the tastings will be confined to 10 times maximum per person per year, thereby adding a considerable additional Margin of Safety.

9. Composition and mandate of the Committee of Experts

- The tastings will be evaluated and approved by the existing independent "Expert Committee for the safety evaluation of newly developed novel foods on the basis of animal cell culture" (Expert Committee) prior to the tasting events, based on the information provided by the company willing to organise a tasting
- The Expert Committee will be comprised of a Chair and include at least four individuals with the following expertise:
    - 1 toxicologist
    - 1 microbiologist
    - 1 physician
    - 1 expert on ethical issues
- The Expert Committee will be selected by CAN from a group of nominated experts (e.g. 2 toxicologists to choose from, etc) for the respective roles, thereby allowing for flexibility and differences in views.

- The Expert Committee will elect a chairperson amongst themselves and will be supported by an administrator from CAN.
- Experts having a conflict of interest shall not be nominated as a member of the Expert Committee. To avoid such conflict of interest, each candidate for the Expert Committee shall determine whether or not any application on the agenda for a certain meeting leads to a potential conflict of interest. A conflict of interest includes but is not limited to experts having (i) a financial interest in the applicant company and/or (ii) an active employment contract with the applicant company. Each expert is himself/herself responsible, taking into account his/her professional standards, to decide if a conflict of interest is present or likely to be perceived present in the public opinion. In cases of doubt, CAN will take a decision about the participation of the expert in the Committee or with regards to a certain application.
- Applicants are responsible for arranging a non-disclosure agreement (NDA) with CAN. CAN arranges NDA's with the Expert Committee. (partners involved) and WFBR arranges NDAs with other partners involved.
- The dossier will be confidentially managed and stored in a digital environment facilitated by CAN for safekeeping and evaluation by the experts, who will have exclusive access thereto.
- Each expert conducts a focused and efficient evaluation of submitted dossiers as per his/her area(s) of expertise. The committee examines key safety aspects leveraging their expertise in toxicology, microbiology, medicine, and ethics. The experts aim for a concise yet comprehensive assessment of potential risks. This evaluation ensures a thorough understanding of risks, aiding in swift and well-informed decisions regarding the safety of the planned tastings.
- One or more (digital) meetings will be organised, to allow experts to articulate their opinion within the setting of the Expert Committee. These meetings also give the possibility to formulate a compiled list of additional questions for the applicant, if needed, that are key to finding a substantiated advice.
- A representative of CAN will provide support as an administrator to support the committee in administrative tasks and coordination, ensuring a smooth and efficient evaluation process. This person will also be tasked with the creation of minutes and further record-keeping of the process for future reference.
- An approval for a tasting will comprise a maximum of 10 similar tasting sessions with a maximum of 30 persons per tasting and over a maximum time span of 1 year. In case more tastings are requested, a new application must be sent in. The Expert Committee will finally conclude that the tasting session is
    - "**approved** under the proposed conditions of tasting": viz. the tasting session conducted under the proposed conditions is not expected to present a health risk to participants. The

tastings can go ahead as planned.

  - is "**not approved** under the proposed conditions of tasting", viz. it did not reach a conclusion on safety of the tasting session conducted under the proposed conditions. The tastings cannot go ahead.

- The Expert Committee needs to be unanimous across its members in their approval of the tastings.
- In cases the Expert Committee is unable to reach a definitive conclusion based on the available information, the outcome will be considered "**inconclusive**". The Expert Committee may set a meeting with the applicant company to discuss all concerns and/or request further information from the applicant in writing. Upon its request, the applicant company will subsequently have an opportunity to address the Expert Committee's concerns. A new evaluation will be conducted once the requested information has been submitted.
- When a definitive conclusion on safety is made, a formal report (letter, stating the conclusion) signed by the Chair will be sent by the CAN representative to the applicant.
- The applicant can only set the date(s) of the tasting after the approval is given by the Committee.
- Once set, the date(s) of the tasting(s) will be communicated timely, at least two weeks prior to the tasting, by CAN to the Ministry of LVVN, VWS and WFBR.

10. Publicity

- Tastings can be held in only a limited number of settings that are controlled by the applicant company, which are not accessible to the general public during tasting events.
- Tastings will be attended by a predefined guest list: tasters and stakeholders.
- Actual tasting will only be permitted to designated and pre-selected tasters.
- Tastings may be attended by (potential) investors, journalists or regulators, and political stakeholders. Depending on the setting, publicity can be expected from journalists. Investors, regulators and political stakeholders might post information on social media.
- Tastings do not include large events that are open to the general public.
- The Ministries will inform the Second Chamber about the agreed Code of Practice.

11. Timeframe, scope and evaluation

- This Code of Practice enters into force from 28 September 2026.
- This proposal is considered to be a pilot and is therefore valid for the period of one year with the possible extension of one more year.
- It is only applicable to tastings held by cultivated meat and seafood companies

    - that have a presence in the Netherlands that is more substantial than just a business entity. An applicant needs to provide information on its presence in and connection with the Netherlands, for example by demonstrating the number of employees active in the Netherlands, its assets (e.g. IP, facilities) and/or operations it has (e.g. R&D, production, HQ, business development, etc.) in the Netherlands. In cases of doubt, CAN decides whether or not an applicant is considered eligible to submit a dossier for a tasting.
    - In cases where production is carried out by a producing company established in the Netherlands on behalf of a product developer, with whom the producing company has a structural relation. The producing company that manufactures the product and submits the dossier is the applicant under the Code of Practice, assumes full responsibility for compliance with its requirements and can prove the structural relation with the product developer. In cases of doubt, CAN decides whether or not an applicant is considered eligible to submit a dossier for a tasting.
- After the period of one year the process of the tastings is to be evaluated by an independent (research) party, which will consult stakeholders involved.
- Once per year, CAN will publish a public report outlining the applicants for tastings in the previous 12 months and the total number of tastings conducted.
- A company willing to organise a tasting applies via an email address provided by CAN (tastings@cellulaireagricultuur.nl) and submits comprehensive information to CAN for evaluation.
- Upon receiving the application, CAN enables a confidential data environment.
- The receipt of an application is communicated as soon as possible by CAN to the applicant