CODEX ALIMENTARIUS COMMISSION

Food and Agriculture Organization of the United Nations

World Health Organization

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Agenda item 4 **CRD2**

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JOINT FAO/WHO FOOD STANDARDS PROGRAMME

EXECUTIVE COMMITTEE OF THE CODEX ALIMENTARIUS COMMISSION

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Virtual

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CCEXEC SUB-COMMMITTEE ON NEW FOOD SOURCES AND PRODUCTION SYSTEMS

Comments of Singapore

Range of potential issues that Codex needs to be able to address in the future

a. Please identify the innovations, new technologies or new/emerging[1] food sources or production systems that are currently in use, in development, or for which regulatory approaches have been or are being developed in the jurisdictions in which you operate.

Cultivated meat, seafood, and dairy	Singapore considers novel foods to be foods and food ingredients that do not have a history of safe use. Substances with a history of safe use are those that have been consumed as an ongoing part of the diet by a significant human population (e.g. the population of a country), for a period of at least 20 years and without reported adverse human health effects. Food and food ingredients which are shown to have history of safe use will not be considered novel foods. Novel foods may also include compounds that are chemically identical to naturally occurring substances but produced through advances in technology (e.g. production of functional ingredients through precision fermentation). Cultivated meat or "cultured meat" where referring to meat developed from animal cell culture is considered to be novel food in Singapore, and are required to undergo a pre-market safety assessment before they may be made available for sale. The same process is required for cultivated seafood and dairy where referring to products derived from animal cell culture. Food that has been determined to have a 'history of safe use' may not require pre-market safety assessment. As such, seaweed, specific strains of microalgae, 3-D printed foods, plant-based protein alternatives, which are based on food ingredients with history of safe use as food are generally not considered to be novel foods in Singapore.
Fermentation-derived ingredients	
Plant-based protein alternatives	
Seaweed	
Edible insects	
3-D printed foods	
Microalgae	
Other (please specify)	

What are the main issues/concerns on trade and/or safety of any of the innovations, new technologies or new/emerging food sources or production systems you have identified that could productively be addressed by Codex? Please provide information/data if available for each of the types of innovations, new technologies

[1] Some food sources and production systems may not be new to all jurisdictions but may be expanding to new geographical areas that have not managed such food sources/systems previously

or new/emerging[2] food sources or production systems on the following aspects: regulatory matters; labelling aspects; nutritional aspects; fair trade practices; quality aspects; environmental or sustainability aspects and any other relevant matters in the tables below.

Regulatory matters

Cultivated meat, seafood, and dairy Fermentation-derived ingredients Plant-based protein alternatives Seaweed Edible insects 3-D printed foods Microalgae Other (please specify)	There is a general lack of regulations of novel foods worldwide, which presents a challenge to innovation and trade. Thus, it would be valuable for Codex to develop a clear guideline to assist regulators to come up with effective and fair regulatory measures to both protect public health and facilitate trade. Pertinent questions may include: • How should 'history of safe use' be interpreted? • How do we assess the safety of both novel foods and their production systems? • What are the safety assessment principles or regulatory considerations? The answers to the abovementioned questions would provide clarity in this emerging field should it be agreed upon and codified by the CAC.

Labelling aspects relevant to consumer protection and fair-trade practices

Cultivated meat, seafood, and dairy Fermentation-derived ingredients Plant-based protein alternatives Seaweed Edible insects 3-D printed foods Microalgae Other (please specify)	**(a) Description of food containing novel ingredients or produced using new production systems** <u>*General principles*</u> In line with the Codex's General Standard for Labelling of Prepackaged Foods (CXS 1-1985), Singapore adopts the general principle that prepacked food products, including those produced using novel ingredients or new production systems, must not be described or presented in a manner that is false, misleading or deceptive or is likely to create an erroneous impression regarding its character in any respect. In addition, prepacked food products should not be described or presented in a manner that might confuse or lead the purchaser or consumer to suppose that the food is connected with such other product. In Singapore, alternative protein* products carrying descriptors like "meat" or "milk" in Singapore must be qualified by appropriate terms such as "mock", "cultured"/ "cell-based" / "cell-cultured" or "plant-based"/"vegetarian" to indicate their true nature, so that consumers may make informed decisions when deciding whether to consume these products. Misrepresenting cultured meat as conventionally produced meat to consumers is not allowed. On the naming of foods containing novel ingredients/produced by new food production systems, Singapore would like to highlight two issues: 1. Use of the term "cultured" to refer to milk that is produced via cell culture technology versus conventional "cultured" (i.e. fermented) milk

[2] Some food sources and production systems may not be new to all jurisdictions but may be expanding to new geographical areas that have not managed such food sources/systems previously

	2. Lack of guidance on how novel ingredients, in particular, cell cultivated ingredients, should be declared under the statement of ingredients of a prepacked food. On (1), consumers have long been accustomed to the use of the word "cultured" in the context of "milk", which they know refers to fermented milk products which have been inoculated with bacterial cultures like *Lactobacillus* spp. When the term "cultured" is also used to describe milk that is made from cell culture technology (and arguably such a description is true to the nature of the product), consumers may inadvertently be misled. Without an internationally agreed set of guidelines, it is conceivable that the use of the term "cultured" could potentially be confusing and even misleading in different context. On (2), there is no clear requirement to declare the source of the cultured cells. Cultured meat products could be made into a product that mimics a conventional meat, with cell cultures from an animal of a different species. For example, the use of cells from bovine for a product that mimics pork / chicken. It is also not clear if there is a need to declare substances that are used during the cultivation process, which may be carried over to the final food product (e.g. scaffolds, culture media of cultured meat). *(*) In Singapore, alternative proteins refer to proteins which do not come from animals. They include those that come from plant-based ingredients (e.g. soy, wheat proteins), which have been traditionally consumed in our local diets, as well as other forms of alternative proteins which do not have a history of being consumed as food like cell-based meat grown under controlled environment and certain species of algae, fungi and insects.* (b) <u>Claims made in relation to food containing novel ingredients or produced using new production system</u> Singapore supports the recommendation under Codex's General Guidelines on Claims (CXG 1-1979) to prohibit claims which could give rise to doubt about the safety of similar food or which could arouse or exploit fear in the consumers. There should be clarity under national legislation and/or Codex guidelines that food containing novel ingredients or produced using new production system are prohibited from making claims that would cast doubts on the safety of conventional counterparts (e.g. claims on absence of antibiotics and hormones). The same principle applies vice versa (e.g. novel food are Frankenstein food). There should also be clear prohibition on products comprising or containing cultured animal cells from carrying claims that suggest that the product is suitable for consumers who wish to avoid consumption of animal products, e.g. "meat-free".

Nutritional aspects

Cultivated meat, seafood, and dairy	No comments
Fermentation-derived ingredients	

Plant-based protein alternatives	
Seaweed	
Edible insects	
3-D printed foods	
Microalgae	
Other (please specify)	

Food safety aspects (e.g. physical, chemical and/or microbiological risks)

Cultivated meat, seafood, and dairy	There is a need for the development of harmonized safety assessment guidelines on cultured meat, covering the substances of concern. Due to possible upregulation of protein allergens relative to primary cells, it would be useful for the development of species-specific allergen lists that should be tested for in cultured meats, prior to consumption or trade. In addition, the outcomes of the ongoing FAO project on cultured meat should be built upon, after its completion.
Fermentation-derived ingredients	While products from precision fermentation have been previously covered by CXG 46-2003, it is timely to consider a review and update of the guideline to evaluate how new analytical methods (proteomics, metabolomics) can supplement these guidelines to improve the relevancy of the document.
Microalgae	For microalgae, the identity and source of the strain and the cultivation media are important in determining the level of impurities. It'll be useful to have guidelines on how to evaluate the microalgae biomass in food safety.
Plant-based protein alternatives	No comments
Seaweed	
Edible insects	
3-D printed foods	
Other (please specify)	

Quality aspects (e.g. essential composition and quality factors, weights and measures, methods of analysis and sampling)

Cultivated meat, seafood, and dairy	No comments
Fermentation-derived ingredients	
Plant-based protein alternatives	
Seaweed	
Edible insects	
3-D printed foods	
Microalgae	
Other (please specify)	

Any other matters relevant to the mission of Codex to protect the health of consumers, ensure fair practices in the food trade and promote co-ordination of all food standards work undertaken by international governmental and non-governmental organization

Cultivated meat, seafood, and dairy	International governmental and non-governmental organisations should coordinate and harmonise communications, especially regarding standards, guidelines and definitions. Variation between different organisations can result in unnecessary confusion in the interpretation of these documents.
Fermentation-derived ingredients	
Plant-based protein alternatives	
Seaweed	
Edible insects	
3-D printed foods	
Microalgae	
Other (please specify)	

b. Do existing Codex standards cover the issues(s) identified?'

For food safety aspects

Food products produced by precision fermentation are currently covered by Guideline for the Conduct of Food Safety Assessment of Foods Produced Using Recombinant-DNA Microorganisms (CXG 46-2003).

c. If not, what would be the need for and benefit of a Codex Standard in the areas you have identified?

For regulatory matters and safety aspects

A harmonized framework for determining what are novel foods (hence requiring additional safety assessments) and what a safety assessment of a novel should comprise of will contribute towards the protection of public health, ensure fair trade, and promote coordination of food standards.

For labelling

Further to the existing Codex General Standard for Labelling of Prepackaged Foods (CXS 1-1985) and General Guidelines on Claims (CXG 1-1979), Singapore would propose for Codex to establish general guidance on the appropriate use of claims and naming of novel food.

d. How would you recommend the issues you have identified as needing a Codex Standard be prioritized?

Singapore would propose for the following prioritization

1) Framework for determining novel food
2) Safety assessment guidelines
3) Review of CXS 1-1985, CXG 1-1979 and CXG 46-2003.

e. What is your assessment of the scientific basis needed to work on the issues identified?

f. What additional information, evidence or analysis would be required for new work proposals to be developed for any of the issues you have identified in your answer to question a.?

Approaches to developing Codex standards

g. In instances where the need for and benefit of a Codex standard or other text is identified, Codex could use different approaches depending on the issue. Please give examples of what you think should be addressed: (1) vertically (i.e., commodity standard or text); (2) horizontally (i.e., general standard or text); (3) a combination of both. Please indicate how each of the issues you have identified above might be addressed by one or more of these means

With reference to Singapore's response to (d) above, Singapore thinks that there may be a need to review the general standards/guidelines CXS 1-1985, CXG 1-1979 and CXG 46-2003 under the General Subject Committee. However, in the event that Codex decides to establish a Task Force to work on matters relating to novel food (*see response to (h) below*), the reviews of these general standards/guidelines may be undertaken by the Task Force.

Use of Codex working mechanisms

h. Codex already has a range of working mechanisms (e.g., committees (some adjourned sine die with potential to reactivate), task forces, working groups, matters referred, cross-committee working groups).

i. Do these mechanisms provide Codex with sufficient tools to address the issues you have identified?

ii. If so, how can they be best used to do that? (e.g., if there is no obvious committee entry point for a new work proposal, how could this be considered within the current structure?)

iii. Do you think existing Codex tools need to be adapted to ensure they are sufficiently flexible to address these issues and if so how (e.g., broadening/revising Terms of Reference of Committees) or do we need to consider any new/additional working mechanisms?

Singapore is of the view that the existing working mechanism would provide Codex with sufficient tools to address the issues identified.

Novel food is a niche area and discussions on the topic would require the involvement of representatives from member countries who are highly specialised in the various scientific fields. Based on the issues identified for future work (e.g. guidance on safety assessment, labelling requirements/guidance), Codex could consider forming a Task Force on novel food with its own specific terms of references to complete work assigned.