

# CODEX ALIMENTARIUS COMMISSION



Food and Agriculture  
Organization of the  
United Nations



World Health  
Organization

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Agenda Item 15

CX/CF 21/14/13-Add.1

April 2021

**ORIGINAL LANGUAGE ONLY**

**JOINT FAO/WHO FOOD STANDARDS PROGRAMME  
CODEX COMMITTEE ON CONTAMINANTS IN FOODS**

**14<sup>th</sup> Session**

**(virtual)**

**3-7 and 13 May 2020**

**CADMIUM AND LEAD IN QUINOA**

Comments submitted by Australia, Canada, Chile, Cuba, Ecuador, Egypt, European Union (EU), Iraq, Japan, United States of America (USA) and International Atomic Energy Agency (IAEA)

**Background**

1. This document compiles comments received in response to CL 2021/22/OCS-CF issued in March 2021.

**Explanatory notes on the Annex**

2. The comments are hereby compiled in the **Annex** and are presented in table format.

## COMMENTS ON CADMIUM AND LEAD IN QUINOA

**GENERAL AND SPECIFIC COMMENTS**

COMMENTS	MEMBER/OBSERVER
Australia does not have any comments on this Circular Letter.	Australia
<p>If it is determined that MLs for cadmium and lead in quinoa, Canada recommends the following:</p> <ul style="list-style-type: none"> <li>i) Obtaining more representative data. Canada contributed the vast majority of data to date to GEMS/Food and the majority of these samples are for imported quinoa, although the country of origin is unknown. Data from South American countries, where the majority of the world's quinoa is produced (Peru and Bolivia, and to a lesser extent Ecuador, Colombia and Argentina), and regions with growing quinoa production (e.g. Europe, India, Canada) should be obtained. Evidence presented in the discussion paper that quinoa cultivar and soil quality influence metal concentrations underscores the need for data representative of the different growing countries, regions and cultivars.</li> <li>ii) Obtaining information on the current global consumption patterns of quinoa, as the market for quinoa has and continues to expand globally.</li> <li>iii) Further investigating what appropriate ML values would be using the approach used to update the existing MLs for lead in foods in the GSTCFF using representative data (as noted in i), above) and targeting ML values that result in a rejection rate of 5% or lower.</li> </ul> <p>Canada is of the opinion that there is not enough evidence to support extending or establishing MLs at this time for lead and cadmium in quinoa. Based on the available data, the MLs discussed of 0.1 and 0.2 mg/kg for cadmium and lead, respectively, would have little impact on dietary exposure to these metals in the general population compared with the current situation with no Codex ML.</p> <p>No information has been provided by a Codex member country that MLs for cadmium and lead in quinoa are needed for trade harmonization, which is a key Codex criterion used to help prioritize Codex MLs for elaboration.</p> <p>There is other ongoing, higher priority work to establish new MLs for lead in certain foods being undertaken at this time by CCCF, for food commodities that have been subject to a prioritization exercise for lead ML development.</p>	Canada
<p>Chile agradece la oportunidad de presentar observaciones al trabajo sobre recomendaciones de niveles máximos para el cadmio y el plomo en la quinua.</p> <p>Chile revisó las recomendaciones de esta carta circular y sus comentarios se exponen a continuación:</p> <p style="padding-left: 40px;">Considerando que, dependiendo de los cultivares y de la calidad del suelo, las semillas de algunos cultivares de quinua pueden acumular mayores cantidades de metales pesados que las de otros, y dado que no se ha podido levantar aún información respecto de la presencia de estos contaminantes ni sus niveles en quinua de orígenes diversos a nivel mundial, Chile considera que se debe seguir investigando las pruebas para, ya sea ampliar los NM actuales de estos contaminantes en cereales en grano e incluir la quinua, o bien, establecer un NM por separado, para su consideración por parte del CCCF, en su 15ava reunión.</p>	Chile
Ecuador agradece a las Secretaría del Codex y JECFA por preparar y presentar el DOCUMENTO DE DEBATE SOBRE EL CADMIO Y EL PLOMO EN LA QUINUA. Ecuador considera que es necesario establecer NM de plomo y cadmio por separado para la quinua y sugiere los niveles máximos de 0,2 mg/kg para el cadmio y de 0,3 mg/kg para el plomo.	Ecuador

COMMENTS	MEMBER/OBSERVER
<p>Egypt appreciates the work and efforts done by Codex and JECFA, and in this regard, Egypt supports extend the MLs for cadmium and lead in cereal grains to quinoa.</p>	<p><b>Egypt</b></p>
<p>European Union Competence European Union Vote</p> <p>The European Union (EU) welcomes the discussion paper on cadmium and lead in quinoa, prepared by the Codex and JECFA secretariats.</p> <p>The EU considers that as the MLs for lead should be established at a level as low as reasonably achievable, because there is no evidence for a threshold for critical lead-induced effects and the current levels of dietary exposure to lead might affect neurodevelopment in foetuses, infants and children. Therefore, the EU would be in favour to extend the Codex ML of 0.2 mg/kg for cereals to quinoa.</p> <p>The EU considers that the MLs for cadmium should be established at a level as low as reasonably achievable, because the mean exposure for adults across Europe is close to, or slightly exceeding, the EU TWI of 2.5 µg/kg bw and subgroups such as vegetarians, children, smokers and people living in highly contaminated areas may exceed the TWI by about 2-fold. As literature, studies and also data from EU stakeholders indicate that compared to other cereals quinoa shows a higher uptake of cadmium from the soil, which also depends on the cultivar and the soil, the EU would be in favour of the establishment of a Codex ML of 0.15 mg/kg for cadmium in quinoa.</p>	<p><b>EU</b></p>
<p>Agree</p>	<p><b>Iraq</b></p>
<p>Japan would like to thank the Codex and JECFA Secretariats for their work for elaborating the discussion paper on cadmium and lead in quinoa.</p> <p>The Annex 1 for Criteria for the establishment of MLs in Food and Feed in the GSCTFF (CXS 193-1995) stipulates that “MLs should be set only for food that is significant for the total exposure to the contaminant.”</p> <p>The data analysis performed by JECFA indicates that the dietary exposure of cadmium from the consumption of quinoa in population groups could represent approximately 5% of the PTMI in mean and up to 15% at the P95 (CX/CF 21/14/13, para. 31), and the dietary exposure of lead from the consumption of quinoa could represent at the P95 up to 1% of the PoD in adults and 8% in children that are one of the most sensitive groups to lead exposures due to neurodevelopmental effects (CX/CF 21/14/13, para. 35). This may indicate that quinoa has a significant impact on exposure of these metals for populations that eat quinoa.</p> <p>CAC42 (2019) adopted the Standard for Quinoa (CXS 333-2019).</p> <p>Considering the above information, Japan can support the establishment of new MLs for lead and cadmium in quinoa, depending on the work priorities of the Committee.</p> <p>Japan supports the establishment separate MLs for cadmium and lead in quinoa from cereal grains, because CCCF12 noted that since quinoa was a pseudo-cereal and the growing conditions were different, it might be appropriate to consider quinoa separately and an ML for lead and cadmium in this commodity could be based on data specific to quinoa (REP 18/CF, para. 12). CCCF13 further noted that extrapolation of MLs of cadmium and lead for cereal grains to quinoa might be difficult because of the difference between chemicals applied for specific purposes (e.g., pesticides) and contaminants; variability in geographic and crop growth conditions; variation in the nature of routes of contamination between contaminants; and the difference of growing conditions, characteristics and potential uptake of contaminants between quinoa and cereal grains (REP 19/CF, para.13).</p> <p>Japan is of the opinion that the determination of the most appropriate draft ML for cadmium and lead in quinoa should be discussed based on ALARA principle after approval of new work by CAC.</p>	<p><b>Japan</b></p>

COMMENTS	MEMBER/OBSERVER
<p>Japan supports that further investigation of the evidence for the establishment of separate MLs for cadmium and lead in quinoa is required for consideration by CCCF15 (2022).</p> <p>For cadmium, availability of more occurrence data from quinoa producing countries would allow CCCF to establish an ML considering the geographic distribution of cadmium concentrations in quinoa, because, as is evident from the discussion on cadmium in chocolate (agenda items 5-7), the concentration of cadmium in the agricultural products might be significantly different from region to region due to geographical factors.</p> <p>Japan thinks that the establishment of MLs for cadmium and lead in buckwheat and cañihua which are excluded from MLs for cereal grains in the current GSCTFF would be given lower priority than quinoa because the relevant Codex commodity standards for those products has not been established.</p>	
<p>Cuba agradece la oportunidad de dar sus comentarios sobre el DOCUMENTO DE DEBATE SOBRE EL CADMIO Y EL PLOMO EN LA QUINUA.(Preparado por las secretarías del Codex y del JECFA) CX/CF 21/14/13 y plantea las siguientes observaciones sobre el mismo:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Cuba considera importante establecer un NM de Cadmio y Plomo para la quinua, sin embargo, el número de muestras es muy pequeña (407), si se considera la cantidad de países que la producen y consumen, según datos de la FAO.</li> <li><input type="checkbox"/> El párrafo 18 comenta que la mayoría de los resultados (n=383) fueron analizados para la categoría de alimentos del Codex «Cereales y productos a base de cereales» para el cadmio (n=185) y para el plomo (n=198). Las muestras restantes (n=23) se correspondían con alimentos para lactantes y niños pequeños en comida preparada o en combinaciones de productos a base de cereales que incluyen quinua. Lo que la suma de 383 y 23 no dan 407. Se debería revisar la distribución de los datos.</li> <li><input type="checkbox"/> En principio Cuba considera prudente recopilar más datos que pudieran aportar los países productores y consumidores de quinua y productos a base de quinua, para así discutir con más robustez los datos aportados en la CCCF15 (2022).</li> </ul>	<b>Cuba</b>
<p>The United States appreciates the work the Codex and JECFA Secretariats have done in preparing the recommendations on maximum levels (MLs) for cadmium and lead in quinoa.</p> <ul style="list-style-type: none"> <li>• CCCF12 (2018) agreed quinoa should be considered separately from other cereal grains and that MLs for lead and cadmium could be based on data specific to quinoa.</li> <li>• The analysis in the discussion paper includes a limited number of samples from Latin America, a major quinoa exporter. Specifically, there are 25 lead and 25 cadmium samples from Peru and two lead samples from Brazil. No data are available from Ecuador or Bolivia, two other major quinoa producers. The dataset is dominated by quinoa from Canada (138 cadmium and 132 lead samples). <ul style="list-style-type: none"> <li>o Canadian grown quinoa appears to be a different variety than quinoa grown in Latin America.</li> <li>o No information is given on regional (Canadian vs Latin American) effects on cadmium and lead levels.</li> </ul> </li> <li>• According to CX/CF 21/14/13, adopting MLs for lead or cadmium would have little impact on dietary exposure to the general population, while causing 0 - 3% rejection of shipments.</li> </ul>	<b>USA</b>

COMMENTS	MEMBER/OBSERVER
<ul style="list-style-type: none"><li>• The United States concludes that:<ul style="list-style-type: none"><li>o While the demonstrated benefits of adopting MLs appear to be minimal based on this report, reducing exposure to metals and to lead in particular is an important goal for CCCF.</li><li>o However, extension of MLs for lead and cadmium from cereal grains to quinoa or work on separate MLs should be postponed until more geographically representative data from quinoa producing countries are available. More data may be available in the future, e.g., from the European quinoa project mentioned in 2019 (CX/CF 21/14/13, paragraph 9) or from exporting countries.</li><li>o Depending on committee priorities, future work could also include canihua and buckwheat. Otherwise, these products will remain excluded by the current footnote.</li></ul></li></ul>	
Extrapolation is recommended. However, assess analytical results of Cd and Pb in quinoa and compare the MLs in cereals, taking into consideration agricultural practices, environmental factors (e.g mining, volcanic soils as applicable)	IAEA