



Ministerie van Economische Zaken,  
Landbouw en Innovatie

## HEAVY METALS IN COCOA

*The status of cadmium and other heavy metals  
in cocoa plants and the soils they grow in.*

Consumer food safety and workers' safety is of paramount importance to the cocoa industry.

Recent studies have indicated cocoa beans, pods and soils in some growing areas may be susceptible to heavy metal contamination. While research has been conducted there is insufficient information on potential sources of heavy metal contamination, notably in cocoa growing areas.

*Heavy metals here  
refers to cadmium  
(Cd) and lead (Pb).*

The aim of this project was to review available literature and conduct research to gauge the extent of the phenomenon for cocoa growing soils and how these relate to levels found in beans by analysing factors such as pH, organic matter, as well as anthropogenic factors such as fertilizer application etc.

*The main threats to human health from heavy metals are associated with exposure to lead, cadmium, mercury and arsenic. Although several adverse health effects of heavy metals have been known for a long time, exposure to heavy metals continues, and is even increasing in some parts of the world.*

In this way the project aimed to:

- Help stakeholders identify, monitor and evaluate potential occurrence of heavy metals.
- Develop Good Agricultural Practices to mitigate heavy metal levels in cocoa

Based on the project findings a set of preliminary recommendations are put forward to help cocoa producers address potential contamination, notably:

- Measures to increase pH content in soil (e.g. liming) to reduce the concentration of available metals in the soil for uptake by the plant.
- Measures to increase the organic matter content of the soil as this may 'stabilise' available forms of heavy metals.
- Avoidance of phosphate based fertilizers as they contain high contents of cadmium
- Analysis of water that is used for irrigation to ensure it is not contaminated with heavy metals.
- Testing of soils for deficiencies of macro and micro nutrients as these can cause an increased uptake of heavy metals by the plant.



Ministerie van Economische Zaken,  
Landbouw en Innovatie

- Selection of cocoa varieties which do not accumulate high levels of heavy metals.
- Avoidance of post harvest contamination of beans by drying naturally, away from busy roads and burning refuse, and preferably elevated above the ground on a stable platform.

These recommendations are being shared with stakeholders during cocoa meetings and discussions. They will also add to the wider set of Good Agricultural Practices which is being developed and disseminated at ICCO level.

Interested parties, (**all stakeholders in the cocoa supply chain from farmer to end user,**) can receive the information on request free of charge.

Organisation	European Cocoa Association
Contact Person	Mrs. Isabelle Adam
Designation Contact Person	General Secretary
Address	Place des Maîeurs 2, Box 3 B-1150 Brussels, Belgium
e-mail	<a href="mailto:Isabelle.adam@eurococoa.com">Isabelle.adam@eurococoa.com</a>
Telephone	+ 32 2 6620006
website	<a href="http://www.eurococoa.com">www.eurococoa.com</a>
Partners	<ul style="list-style-type: none"><li>• Caobisco (Association of the Chocolate, Biscuit &amp; Confectionery Industries of the EU) – Brussels, Belgium</li><li>• CAB INTERNATIONAL (CABI), Bakeham Lane, Egham, Surrey, TW 20 9TY</li><li>• The national cocoa research institutes:<ul style="list-style-type: none"><li>- Instituto de Cultivos Tropicales (ICT) -Jr. Santa Maria 241 - Banda del Shilcayo, Tarapoto San Martin, Peru</li><li>- Fundación Jardín Botánico de Mérida (FJBM) - Núcleo Universitario Pedro Rincón Gutiérrez ‘La Hechicera’, Mérida, Venezuela</li></ul></li></ul>

*This project was implemented with financial support from the Ministry of Economic Affairs, Agriculture and Innovation in the Netherlands. The financial support was made available from the subsidy programme for sustainable development of the cocoa and chocolate sector (also known as ‘the Buffer Stock Fund’). The responsibility for the implementation of the project and its outcomes lies with the project partner(s). The outcomes of the project do not necessarily reflect the views and opinions of the Ministry. The Ministry is not responsible for any use that may be made of the information contained in this project summary and other documents related to this project.*