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Securing small farmers' exportation: OTA vs. coffee and cocoa in Ivory Coast

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Key features

Ivory Coast's economy is greatly depending on cocoa and coffee, as it is the first world cocoa exporter and the 7th for coffee and the EU is an important market for both products. It is thus crucial for Ivory Coast to produce these products in a way to avoid contamination by Ochratoxin A (OTA) - a mycotoxin considered by the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment to be a genotoxic human carcinogen -, to monitor the contamination of their exports, to dispose of plan and training equipment to react to an emergency and to train all the actors of the supply chain. There is also a need to dispose of reliable data to convince the European Commission DG SANCO and the CODEX Alimentarius of an adoption of realistic maximum level of OTA content in coffee and cocoa.

1. Context and background

European Commission, in accordance with regulation EC 446/2001, is regularly examining the maximum accepted levels for several kinds of food contaminants. As coffee, cocoa and their products might be contaminated by Ochratoxin A (OTA) - a mycotoxin considered by the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment to be a genotoxic human carcinogen –, maximal contamination levels are set for sensitive products and are regularly revised.

Ivory Coast's economy is greatly depending on cocoa and coffee, as it is the first world cocoa exporter and the 7th for coffee and the EU is an important market for both products. As cocoa in Ivory Coast is mainly grown by small farmers, it is thus crucial for Ivory Coast to:

- Produce these products in a way to avoid contamination by OTA,
- Monitor the contamination of their exports,
- Dispose of plan and training equipment to react to an emergency and to train all the actors of the supply chain.
- Dispose of reliable data to convince the European Commission DG SANCO and the CODEX Alimentarius of an adoption of realistic maximum level of OTA content in coffee and cocoa.

2. Business model

The applied model is typical of a trade capacity building approach to support national institutions in facing a threat originating from international markets on a small farmer driven supply chain.

A challenge arises from the fact that the scientific reason for the threat to occur was not clearly identified when discussions about a maximal contamination limit was set-up. Ochratoxin was identified as a potential carcinogenic and we knew it is produced by special types of mushrooms but where does the contamination occur in the supply chain? What were the critical steps within the supply chain?

Another challenge comes from the fact that the majority of actors in the supply chain were illiterate, in remote locations, and that OTA contamination is very abstract as no visible signs can be observed.

The following steps were thus successfully set-up:

- Scientific studies to increase the knowledge and to bring Ivorian scientific at international level.
- Reinforce analytical laboratories and inspection capacities to comply with international standards.
- Develop proactive and reactive communication tools adapted to each supply chain actors in order to face the threat.
- Develop negotiation capacities and facilitate contacts to ensure adequate communication at international level.

3. Results and Impact

The project assistance includes studies in the coffee and cocoa supply-chain (determination of contamination levels, identification of critical contamination points, and determination of adequate sampling methods); national OTA analytical laboratory upgrading for ISO 17025 accreditation; and the promotion of good practices during production and post-harvest stages. Lobbying activities are also undertaken to draw the attention of the EC on adequate OTA maximum levels. It reached the following impacts:

- Scientific studies: increase of contamination knowledge and training of inspectors:
 - Sampling procedure and OTA content determination:
 - Sampling plan adopted and tested;
 - Training for 15 samplers;

- Sampling, shredding and storage of cocoa and coffee sample during two cocoa campaign;
- Determination of OTA content in more than 3 200 samples.
- o Critical points for cocoa contamination:
 - Installation of 3 experimental stations and 2 years experiences on each station for studying the impact of several parameters (climate, sanitary and phyto-sanitary status of pods, pods opening techniques, fermentation techniques, drying techniques, storage techniques, etc.) on mycotoxin contamination;
 - Sampling, shredding and storage of cocoa and coffee sample during two cocoa campaign;
 - Determination of OTA content in more than 800 samples.
- o Studies on the type of mushrooms and the natural conditions in which they produce OTA ;
- Reinforcement of two OTA analytical laboratories and upgrading for ISO 17 025 accreditation:
 - o Laboratories gap analysis for equipment and training;
 - o Purchase of equipment for 2 laboratories
 - o Training of laboratories staff to sample preparation and analysis;
 - o Training for 20 people on ISO 17 025 requirements;
 - o Training for 20 people on Internal audit;
- Training on agricultural and post-harvest techniques to prevent and avoid cocoa and coffee contamination by OTA:



- o More than 2 000 supply-chain actors and institutional staff have been mobilized for the project participation: Information, sensitisation and mobilisation of agricultural professional organisations, exporters, unions, NGOs, decentralised unity of the Ministry of Agriculture, control organisms, harbours, carriers and transformers in Abidjan and 16 large coffee and cocoa production areas;
- o 125 trainers have been trained to good agricultural practices and preventive techniques for avoiding cocoa and coffee contamination by OTA;
- o 37 trainers have been trained for extension methods;
- o Training materials have been developed and reproduced for a large diffusion (leaflets, picture tool box, manual for picture tool box, educational posters, ready to air radio messages, and movies).
- o 1 260 villages have received the training and more than 100 000 farmers and supply chain actors benefited from the training.

- Lobbying activities :
 - o To draw the attention of the EC on adequate OTA maximum levels, meeting with General Directorate for health and consumer affairs and national counter-parts in Brussels;
 - o Participation of Côte d'Ivoire to the Codex alimentarius meeting.

As impact, the reputation of Cote d'Ivoire's cocoa and coffee has improved significantly in international markets and, very importantly, the authorities are now methodologically well equipped to face new threats in their supply chains.