

Aflatoxin Management in Brazil

STDF/PG/114



The Safenut Project: Controlling aflatoxins in Brazil nut production

Nuts are frequently contaminated by high levels of aflatoxins which present a major problem for public health and trade. Following the introduction of more stringent standards by importing countries, Brazilian producers and exporters faced challenges in reducing and controlling aflatoxin contamination in Brazil nuts for export. Despite efforts to improve food safety practices in processing plants, aflatoxin contamination remained a problem in other parts of the value chain. The Safenut project developed a safety management system to reduce and control the occurrence of aflatoxins along the Brazil nut production chain. While project activities focused on the States of Acre and Pará, the aflatoxin safety management model developed could be replicated in other parts of Brazil and beyond.

Partners

Brazilian Enterprise for Agricultural Research (EMBRAPA)
Brazilian Ministry of Agriculture, Livestock and Supply (MAPA)
CIRAD (Centre de coopération internationale en recherche agronomique pour le développement) France
National Food Administration, Sweden
Central Science Laboratory, UK

Start

June 2006

End

November 2008

Location

Brazilian states of Acre and Pará

Budget

STDF contribution: US\$ 619,664
In-kind contribution: US\$ 206,555
Total cost: US\$ 826,219

Key Objective

To validate and transfer to stakeholders a sustainable and effective safety management system for reducing and controlling aflatoxin occurrence along the Brazil nut production chain, as a means to recover and consolidate market access, particularly in the European Union (EU).

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Project Achievements

Established the foundations for improved aflatoxin surveillance

The project facilitated an in-depth, scientific review and analysis of the Brazil nut production system and how to reduce aflatoxin contamination in practice. By studying and comparing the effectiveness of traditional versus improved practices, the project generated a substantial body of new scientific knowledge, as well as validated recommendations on improved practices for aflatoxin control. Scientific research and field studies were implemented to identify the critical control points for aflatoxin and fungal growth along the production chain, and develop predictive models. Laboratory staff were trained to test and apply advanced analytical methods (such as Enzyme Linked Immunosorbent Assay (ELISA), Lateral Flow Device (LFD) and AFPA agar plate methodology) as a means to identify aflatoxin-producing fungi and inform the development of good practices. Protocols and standard operating procedures were produced for use by stakeholders involved at different steps in the production chain.

Improved stakeholders' knowledge and skills to control aflatoxins

The project increased awareness among nut producers and collectors of the critical points for aflatoxin contamination and the factors advancing fungal growth, which enabled them to improve surveillance and control. Specialized training courses were targeted at laboratory staff in Acre and Pará. The results of scientific research were published, advancing global knowledge on aflatoxin contamination and control and encouraging further research. Continued efforts to implement these good practices are likely to further reduce aflatoxin contamination along the Brazil nut production chain, and contribute to enhanced market access and improved public health. A project specific website was created with detailed information on the project activities and outputs.

Promoted public-private dialogue and stimulated changes to Codex Code of Practice

The project was a model for institutional cooperation and coordination on aflatoxin control in Brazil nut production. It facilitated public-private dialogue on how to achieve effective aflatoxin management solutions for Brazil nuts. It also inspired additional initiatives by the Brazilian Government to disseminate knowledge obtained through the project and apply it more widely. This is reflected in the adoption by Codex of suggested changes to the Codex Code of Practice for the Prevention and Reduction of Aflatoxin Contamination in Tree Nuts in July 2010, based on a proposal from Brazil.

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Lessons Learned

Consider alternative markets and industry incentives

The Safenut project was a direct response to stricter European regulations on aflatoxins and a rise in EU border notifications related to contamination of unshelled nuts, mainly from Brazil. Stakeholders involved in the project's design expected that reducing aflatoxin contamination in unshelled nuts would enable the Brazilian industry to regain its position in international markets, particularly in Europe. However, in response to the stricter requirements in the EU market, the industry turned to other regional markets with less stringent standards. This highlights the importance of carefully considering all market options (domestic, regional and international) available to the private sector, the SPS requirements of these markets, and the industry's strategic orientation and incentives to target particular markets. In some cases, feasibility studies would be beneficial during the project design phase to fully understand these factors.

Adopt a value chain approach

The Safenut project focused primarily on ways to reduce aflatoxin contamination during nut collection and production, reflecting the characteristics (unshelled) of Brazil nut exports to the EU. While the knowledge and good practices produced provide a valuable basis on which to reduce contamination in production, a more holistic, value chain approach may have been useful to better understand the costs, benefits and opportunities of reducing aflatoxin contamination all along in the value chain. This would have allowed companies to consider the options to reduce aflatoxin contamination at other points in the value chain, notably through the implementation of improved quality control systems for shelled nuts. Considering compliance as part of the overall competitiveness of the Brazil nut industry (notably for both the unshelled and shelled segments of the market) would have been useful to identify a range of possible options to enhance safety and quality.

Test and apply scientific research

This project highlighted the importance of applied research to better understand the practical aspects of implementing improved practices for aflatoxin control including, for instance, the economic implications for value chain actors and possible consequences on supply chain restructuring. Testing the practicability and feasibility of scientific findings helps to ensure that they are relevant for the stakeholders targeted. It also promotes adoption of the resulting good practices and enhances sustainability. While such work takes time, it should be built into project design from the onset.

Additional Resources

[Safe Nut Project website](#)

[STDF Final Report](#)

[Ex-post Evaluation of Project STDF 114](#)

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