



**Activity Title and Number:** HACCP in international transportation and mycotoxins in peanuts; A204-C3

**Beneficiary:** General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ)

**Location and Date:** Qingdao and Valencia, Spain; August 2013-March 2015

**Stakeholders:** China Chamber of Commerce for I/E of Foodstuffs, Native Produce and Animal By-Products (CCCFNA), peanut producers and processing industry.

## Brief Activity Report

### Relevance and Impact

China exports a high volume of peanuts to the EU, but in recent years some batches have been rejected at EU borders due to the occurrence of repeat findings of high mycotoxin levels. To maintain a safe and efficient trade relationship, EU authorities included an audit in the 2011 Food and Feed Veterinary Office (FVO) inspection programme to investigate the high incidence of mycotoxin in products originating from China. The FVO inspection results identified several key areas for improvement including: the official controls of peanut growers, the implementation of Hazard Analysis and Critical Control Point (HACCP) principles, and the traceability to farm level and storage conditions. Consequently, the EUCTP II implemented a seminar (A122C3) to strength the capacity of Chinese institutions in implementing HACCP and carried out a study to examine the risk associated to international transportation on the incidence of mycotoxins in peanuts originating from China.

### Activity Description

The Study was divided in three parts, the first one a **scientific literature review for the assessment of aflatoxin production in peanuts**. This was based on a quantitative microbiological risk assessment, which includes: **hazard identification** (to assess the diversity of microflora implicated in aflatoxin production in peanuts); **hazard characterization** (to identify physiological characteristics of such microflora) and **risk characterization** (determination of risk in different environmental conditions). In the second part of the study, **temperature and humidity were monitored during transportation in four shipments within a 12-month period**. Measurements were obtained with data loggers attached to peanuts bags during transportation from Qingdao, China to Valencia, Spain. The third part of the study was a **theoretical assessment of the production of aflatoxins in peanuts during transportation using mathematical models** and the information gathered from part one and two of this study

*Peanut bags with the study data loggers unloading in the port of Valencia, Spain*



### Results and Dissemination

- During transportation, **the mean temperature was 30°C ±1°C in summer and 18°C±1.5°C in winter**. The humidity in the summer and winter were 60±15% RH and 45±7% RH, respectively.
- The data collected demonstrated considerable variation before the containers are loaded into the ship in Qingdao and during unloading in Valencia. The time for this period should be shortened to a minimum to reduce the risk of mold development.
- The product monitored took place during the summer months. During this period the product in the containers monitored was exposed to environmental conditions that could favor the growth of mold associated to the production of aflatoxin.