codex alimentarius commission

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

WORLD HEALTH ORGANIZATION

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CODEX COMMITTEE ON CONTAMINANTS IN FOODS

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PROPOSED DRAFT CODE OF PRACTICE FOR THE PREVENTION AND REDUCTION OF AFLATOXIN CONTAMINATION IN DRIED FIGS (N10 – 2007)

(At Step 3 of the Elaboration Procedure)

Governments and international organizations are invited to submit comments on the following subject matters no later than 24 March 2008, preferably in electronic format, for the attention of Ms. Tanja Åkesson, the Netherlands Secretariat of the Codex Committee on Contaminants in Foods, Fax No.:+31 70 3786141; E-mail:info@codexalimentarius.nl with a copy to the Secretary, Codex Alimentarius Commission, Joint FAO/WHO Food Standards Programme, Viale delle Terme di Caracalla, 00153 Rome, Italy (Fax +39.06.5705.4593; E-mail: mailto:Codex@fao.org).

BACKGROUND

1. The Codex Committee on Contaminants in Foods, at its First Session held in April 2007, agreed to start new work on the elaboration of a code of practice for the prevention and reduction of aflatoxin contamination in dried figs and forward the project document proposing new work to the 59th Session of the Executive Committee for critical review and for approval by the 30th Session of the Commission.

2. The Committee also agreed to establish an electronic working group led by Turkey, with the assistance of The European Community, Greece, Iran, Spain, Sweden, Thailand, the United Kingdom and INC, working in English, to prepare a draft proposed Code of Practice on the Prevention and Reduction of Aflatoxin Contamination in Dried Figs at Step 2, with a view to its circulation for comments at Step 3 and its consideration at Step 4 at the next session of the Committee, pending the formal approval of new work by the Commission (see ALINORM 07/30/41 para.118, 119, 120 and 121 and Appendix XII).

3. The 30th Session of the Codex Alimentarius Commission approved the elaboration of a Code of Practice for the Prevention and Reduction of Aflatoxin Contamination in Dried Figs as new work for the Committee (see ALINORM 07/30/REP and Appendix VII).

4. The electronic working group prepared the proposed draft code of practice for prevention and reduction of aflatoxin contamination in dried figs, which is presented in Appendix I to this document. Greece, European Community, Iran, Spain, Sweden, Thailand, Turkey, United Kingdom, CIAA and INC participated in the electronic working group. A list of participants is presented in Appendix II to this document.

APPENDIX I

PROPOSED DRAFT CODE OF PRACTICE FOR THE PREVENTION AND REDUCTION OF AFLATOXIN CONTAMINATION IN DRIED FIGS

INTRODUCTION

1. The elaboration and acceptance of a Code of Practice for dried figs by Codex will provide uniform guidance for all countries to consider in attempting to control and manage contamination by various mycotoxins, specifically aflatoxins. It is of high importance in order to ensure protection from aflatoxin contamination in both producer and importer countries. All dried figs should be prepared and handled in accordance with the Recommended International Code of Practice – General Principles of Food Hygiene[(1)] and Recommended International Code of Hygienic Practice for Dried Fruits[(2)] which are relevant for all foods being prepared for human consumption and specifically for dried fruits. It is important for producers to realize that Good Agricultural Practices (GAP) represent the primary line of defence against contamination of dried figs with aflatoxins, followed by the implementation of Good Manufacturing Practices (GMP) and Good Storage Practices (GSP) during the handling, processing, storage and distribution of dried figs for human consumption. Only by effective control at all stages of production and processing, from the ripening on the tree through harvest, drying, processing, storage, transportation and distribution can the safety and quality of the final product be ensured. However, the complete prevention of mycotoxin contamination in (UK) commodities, including dried figs, has been very difficult to achieve (1, 12, 13, 15, 19).

2. This Code of Practice applies to dried figs (*Ficus carica* L.) of commercial and international concern, intended for human consumption. It contains general principles for the reduction of aflatoxins in dried figs that should be sanctioned by national authorities. National authorities should educate producers, transporters, storage keepers and other operators of the production chain regarding the practical measures and environmental factors that promote infection and growth of fungi in dried figs resulting in the production of aflatoxin in orchards. Emphasis should be placed on the fact that the planting**,** pre-harvest, harvest and post-harvest strategies for a particular fig crop depends on the climatic conditions of a particular year, local production, harvesting and processing practices followed in a particular country or region.

3. National authorities should support research on methods and techniques to prevent fungal contamination in the orchard and during the harvesting, processing and storage of dried figs. An important part of this is the understanding of the ecology of *Aspergillus* species in connection with dried figs.

4. Mycotoxins, in particular aflatoxins are secondary metabolites produced by filamentous fungus found in soil, air and all plant parts and can be toxic to human and animals through consumption of contaminated food and feed entering into food chain. There are a number of different types of aflatoxin, particularly aflatoxin B1 have been showed toxigenic effects i.e. it can cause cancer by reacting with genetic material. Aflatoxins are produced by mould species that grow in warm, humid conditions. Aflatoxins are found mainly in commodities imported from tropical and subtropical countries with in particular peanuts (groundnuts) and other edible nuts and their products, dried fruit, spices and maize. Milk and milk products may also be contaminated with aflatoxin M1 owing to the consumption of aflatoxin contaminated feed by ruminants.

5. Aflatoxigenic fungi are spread on fig fruits during fruit growth, ripening and drying but thrive especially during the ripening and overripening phase. The formation of aflatoxins in dried figs is mainly due to contamination by *Aspergillus* species and particularly *A. flavus* and *A. parasiticus*. The presence and spread of such fungus in fig orchards are influenced by environmental and climatic factors, insects, (insect abundance or control in an orchard is related to the applied plant protection measures so could be included in cultural practices but to point out its significance can be left as another factor), cultural practices, floor management and susceptibility of fig varieties (6).

[(1)] Recommended International Code of Practice - General Principles of Food Hygiene (CAC/RCP 1- 1969, Rev. 4-2003)

[(2)] Recommended International Code of Hygienic Practice for Dried Fruits CAC/RCP 1- 1969)

6. The aflatoxin-producing *Aspergillus* species and consequently dietary aflatoxin, contamination is ubiquitous in areas of the world with hot humid climates. *A. flavus/A. parasiticus* cannot grow or produce aflatoxins at water activities less than 0,7; relative humidity below 70 % and temperatures below 10 ºC. Under stress conditions such as drought or insect infestation, aflatoxin contamination is likely to be high. Improper storage conditions can also lead to aflatoxin contamination after crops have been harvested. Usually, hot humid conditions favour mould growth on the stored food which can lead to high levels of aflatoxins (6).

7. Application of the following preventive measures is recommended in dried fig producing regions in order to reduce epidemic risk by application of good practices:

a) Risk analysis

Ensure that regional/national authorities and grower organisations:

- Sample dried figs representatively for analysis to determine the level and frequency of aflatoxin contamination;
- Combine this information with regional risk factors including meteorological data, cultural practices and propose adapted management;
- Communicate this information to growers and other operators along the chain.

b) Training of producers.

Ensure training of producers with regards to:

- Risk of mould and mycotoxins;
- Conditions favouring aflatoxigenic fungi and period of infection;
- Knowledge of preventive measures to be applied in fig orchards.

c) Training of transporters, storage keepers and other operators of the production chain.

Ensure training regarding the practical measures and environmental factors that promote infection and growth of fungi in dried figs resulting in a possible secondary production of aflatoxins at post harvest handling and processing stages. Besides these, all applications should be documented.

8. In developing training programs or gathering risk information, emphasis should be placed on the fact that the planting**,** pre-harvest, harvest and post-harvest strategies for a particular fig crop depends on the climatic conditions of a particular year, local production, harvesting and processing practices followed in a particular country or region.

1. SCOPE

9. This document is intended to provide guidance for all interested parties producing and handling dry figs for entry into international trade for human consumption. All dried figs should be prepared and handled in compliance with the Recommended International Code of Practice – General Principles of Food Hygiene and Recommended International Code of Hygienic Practice for Dried Fruits, which are relevant for all foods being prepared for human consumption. This code of practice indicates the measures that should be implemented by all persons that have the responsibility for assuring that food is safe and suitable for human consumption.

10. Fig differs from other fruits, which has potential risk of aflatoxin contamination, with its fruit formation and properties. Its increased sensitivity is due to juicy and pulpy skin, and the cavity inside the fruit and the suitable composition rich in sugar. Thus, toxigenic fungi may grow and form aflatoxins on the outer surface or inside the cavity even if no damage occurs on the skin. The critical periods for aflatoxin formation in dried fig fruits starts with the ripening of figs on the tree, continues during the over-ripe period when they lose water, shrivel and fall down onto the ground and until they are fully dried on drying trays. Fungal growth and toxin formation can occur on the outer fleshy skin and/or inside the fruit cavity. Some insect pests as the Dried Fruit Beetle (*Carpophilus spp.*) or Vinegar flies (*Drosophila spp.*) that are active at fruit ripening stage may act as vectors in transferring the aflatoxigenic fungi to the fruit cavity (2, 7).

11. The main requirement is to obtain a healthy plant and good quality product by applying necessary agricultural techniques for prevention/reduction of aflatoxin formation.

2. DEFINITON

12. **Fig**, *Ficus carica* L., as a dioecious tree has male and female forms that bear two to three cycles of fruits per year.

13. **Caprification** is a process applied in case female fig fruits of a certain variety require pollination for fruit set. The "*profichi*" (ilek) fruits of male figs possessing fig wasps (*Blastophaga psenes* L.) and pollen grains are either hung or placed on female fig trees to pollinate and fertilize the main and second crop (iyilop) fruits. The pollen shedding period of the male flowers in male fig fruits should coincide with the ripening of the female flowers in female fig fruits (3).

14. **Ostiole** or **eye** is the opening at the distant end of the fruit that may, if open, provide entrance to the vectors, Dried Fruit Beetle (*Carpophilus spp.*) or Vinegar flies (*Drosophila spp.*) for dissemination of aflatoxigenic fungi.

3. RECOMMENDED PRACTICES BASED ON GOOD AGRICULTURAL PRACTICES (GAP), GOOD MANUFACTURING PRACTICES (GMP) AND GOOD STORAGE PRACTICES (GSP)

3.1 SITE SELECTION and ORCHARD ESTABLISHMENT (PLANTING)

15. Fig trees grow in subtropical and mild temperate climates and have a short dormancy period which restricts fig growing in low temperatures in winter rather than high temperatures in summer. Low temperatures right after bud-break in the spring and during October – November before shoots are hardened, can damage the tree. Freezing temperatures in winter may affect the fig wasps over-wintering in male fruits and may create problems in fruit set (1).

16. High temperatures and arid conditions in spring and summer can increase sun-scald, result in early leaf fall if severe, cause substantial problems in quality and trigger aflatoxin formation (4, 17).

17. The fig varieties may vary regarding their tendency for cracking/splitting however high relative humidity and rainfall during the ripening and drying period must be taken into account before establishing the orchard. High humidity and rainfall can increase ostiole-end cracking, development of fungi and decrease of quality.

18. Fig trees can be grown in a wide range of soils such as sandy, clayey or loamy. A soil depth of at least 1-2 m accelerates the growing of fig trees which have fibrous and shallow roots. The optimum pH range for soil is 6.0 – 7.8. The chemical (such as pH) and physical properties of the orchard soil can influence the intake of plant nutrients and consequently dried fig quality and resistance to stress conditions, thus soil properties must be fully evaluated before orchard establishment.

19. The level of the underground water table must not be limiting. Availability of irrigation water is an asset to overcome drought stress.

20. The orchards should be established with healthy nursery trees that are free from any insects and diseases. Adequate space, which is generally 8 m to 10 m, should be given between the rows and the trees to allow the use of necessary machinery and equipments. Before planting the way the fruits will be utilized (fresh, dried or both) need to be considered. Other species present in the orchard should also be considered. Species which are susceptible to aflatoxin formation such as maize should not be produced around the fig orchards. Materials remaining from the previous crops and foreign materials should be cleaned and if it is needed the field can be fallowed in the following few years (2).

3.2 ORCHARD MANAGEMENT

21. Practices such as caprification, pruning, tillage, fertilization, irrigation, and plant protection should be applied on time and with a preventive approach in the framework of "Good Agricultural Practice".

22. Cultivation practices, both in the orchard and in the vicinity, that might disperse *A. flavus/A. parasiticus*, and other fungal spores in the soil to aerial parts of trees should be avoided. Soil as well as fruits and other plant parts in fig orchards can be rich in toxigenic fungi Soil tillage practices must be terminated one month before the harvest. During the growing seasons, roadways near the orchards should be watered or oiled periodically to minimise outbreaks of mites as a result of dusty conditions. The devices and equipments should not damage fig trees or cause cross contamination with pests and/or diseases (7, 9, 17).

23. Fig trees must be pruned lightly and all the branches and other plant parts must be removed from the orchard in order to avoid further contamination. Direct incorporation of all parts into the soil must be avoided. After soil and leaves analysis, based on the expert proposal proper composting can be recommended prior to incorporation of the organic matter.

24. Fertilization affects the composition of fruit and stress conditions may trigger toxin formation. Also excess nitrogen is known to enhance fruit moisture content which may extend the drying period. Fertilizer applications must be based on soil and plant analysis and all recommendations must be made by an authorized body.

25. An integrated pest management programme must be applied and fruits or vegetables that promote infestation with dried fruit beetles or vinegar flies should be removed from the fig orchards since these pests act as vectors for the transmission of fungi especially into the fruit cavity. Pesticides approved for use on figs, including insecticides, fungicides, herbicides, acaricides and nematocides should be used to minimise damage that might be caused by insects, fungal infections, and other pests in the orchard and adjacent areas. Accurate records of all pesticide applications should be maintained.

26. Irrigation should be implemented in regions or during periods with high temperatures and/or inadequate rainfall during the growing season to minimise tree stress, however, irrigation water should be prevented from contacting the figs and foliage.

27. Water used for irrigation and other purposes (e.g. preparation of pesticide sprays) should be of suitable quality, according to the legislation of each country and/or country of import, for the intended use.

3.3 CAPRIFICATIONS

28. Caprifigs (male fig fruits) are important for fig varieties, which require for fruit set. Caprifigs should be healthy, free from fungi and should have plenty and live pollen grains and wasps (*Blastophaga psenes* L.). During pollination of female fig fruits by fig wasps, which pass their life cycle in caprifig fruits, *Fusarium, Aspergillus spp* and other fungi can be transported to the female fig fruits from the male fruits through these wasps. Since male trees are the major sources of these fungi, male trees are generally not allowed to grow in female fig orchards. It is important to use clean caprifigs, rotten and/or soft caprifigs should be removed prior to caprification. Because caprifigs, which are allowed to stay on the tree and/or in the orchard, can host other fungal diseases and/or pests therefore after caprification they must be collected and destroyed outside the orchard. To make the removal of caprifigs easier, it is recommended to place caprifigs in nets or bags (2, 16).

3.4 PRE-HARVEST

29. All equipment and machinery, which is to be used for harvesting, storage and transportation of crops, should not constitute a hazard to health. Before harvest time, all equipment and machinery should be inspected to ascertain that they are clean and in good working condition to avoid contamination of the figs with soil and other potential hazards.

30. Trade Associations, as well as local and national authorities should take the lead in developing simple guidelines and informing growers of the hazards associated with aflatoxin contamination of figs and how they may practice safe harvesting procedures to reduce the risk of contamination by fungi, microbes and pests.

31. Personnel that will be involved in harvesting figs should be trained in personal hygienic and sanitary practices that must be implemented in processing facilities throughout the harvesting season.

3.5 HARVEST

32. Harvesting of dried figs is different from harvest of figs for fresh consumption. The figs to be dried are not harvested when they mature but kept on the trees for over-ripening. After they lose water, partially dry and shrivel, an abscission layer forms and the fig fruits naturally fall from the trees onto the ground. The most critical aflatoxin formation period begins with ripening and continues when shriveled until fully dried. The fig fruits need to be collected from the ground daily to reduce aflatoxin formation and other losses, caused by diseases or pests. On the other hand, the collecting containers should be suitable, preventing any mechanical damage and should be free of any fungal sources and clean.

33. Dried fig harvest should be done regularly at short intervals daily to minimize the contacts with soil and thus contamination risks. Frequent harvest also reduces insect infestation especially of dried fruit beetles (*Carpophilus spp.*) and fig moths (*Ephestia cautella* Walk. and *Plodia interpunctella* Hübner).

34. In case of a significant difference between day and night temperatures, dew formation that may trigger aflatoxin production may occur. This is important since wet surfaces favouring the growth of fungi may be formed even after complete drying of the fruit.

3.6 DRYING

35. Drying area and time are important factors in aflatoxin formation. The moisture content of the partially dried and shriveled fig, fallen down from the tree, is approximately 30-50 % and these fruits are more susceptible to physical damage than the fully dried fig fruits that have approximately 20-22 % moisture content. Good soil management that reduces particle size and smoothens the surface before harvest is therefore necessary to reduce the risk of damaging.

36. Fig fruits can be dried artificially in driers or under the sun with the help of solar energy. In artificial driers, the fig fruits are dried in a shorter period and more hygienic products with less pest damage can be obtained. Good drying practice can help preventing aflatoxin formation. Sun-drying is cost efficient and environmentally friendly, however may as a result increase the likelihood of aflatoxin contamination.

37. Fruits shall not be placed directly on the soil surface or on some vegetation. Drying beds should be arranged as single layers in a sunny part of the orchard where air currents are present. The drying trays shall be covered with a material to protect the figs from rain fall in case there is a risk or to prevent infestation of fig moths that lay eggs in the evening. Drying trays that are 10-15 cm above the ground should be preferred in sun-drying since fruits can benefit from the heat at the soil surface and are well aerated. They can dry quickly and the contamination of fruits by foreign materials and sources of infection such as soil particles or plant parts are eliminated.

38. Figs that are dried, possesing moisture ≤ 24 % and water activity ≤ 0.62, should be picked from the trays. The fully dried fruits should be collected from the trays preferably in the morning before the temperature of the fruits increase and soften but after the dew goes away. The trays should be re-visited at short intervals to collect fully dried figs. Dried figs taken from drying trays must be treated to prevent storage pests with a method allowed in the legislation of each country, for the intended use.

39. Low quality figs which are separated as cull and have the risk of contamination, should be dried and stored separately to prevent cross contamination. Staff who conduct the harvesting or work in storage rooms should be trained in this respect and controlled to obey these criteria.

3.7 TRANSPORTATION

40. During the transportation of dried figs from farm to processor, the quality of figs should not be affected adversely. Dried figs should not be transported with products that pungent odours or have the risk of cross contamination. During transportation, increase of moisture and temperature must be prevented. Suitable ventilation and coverage should be used in the raining weather.

41. The dried figs should be moved in suitable containers to an appropriate storage place or directly to the processing plant as soon as possible after harvesting or drying. At all stages of transportation, boxes or crates allowing aeration should be used instead of bags. Containers used in transportation shall be clean, dry, and free of visible fungal growth, insects or any other source of contamination. The containers should be strong enough to withstand all handling without breaking or puncturing, and tightly sealed to prevent any access of dust, fungal spores, insects or other foreign material. Vehicles (e.g. wagons, trucks) to be used for collecting and transporting the harvested dried figs from the farm to drying facilities or to storage facilities after drying, should be clean, dry, and free of insects and visible fungal growth before use and re-use and be suitable for the intended cargo.

42. At unloading, the transport container should be emptied of all cargo and cleaned as appropriate to avoid contamination of other loads.

3.8 STORAGE

43. Figs must be properly cleaned, dried and labelled when placed in a storage facility equipped with temperature and moisture controls. The shelf life of dried figs can be prolonged, if they are dried to a water activity value at which molds, yeasts and bacteria cannot grow (water activity<0.65). In case further hot spots are formed where temperature and moisture increases, secondary aflatoxin/ochratoxin A formation may occur. Because of this reason, any possible source enhancing humidity of the dried fruits or of the surrounding environment must be eliminated. Direct contact of dried fig containers with floors or walls need to be prevented by placing a palette or a similar separator.

44. The storage rooms should be far from sources of contamination as in the case of mouldy figs or animal shelters if any are present at the farm, and fruits must not be stored with materials that possess unusual odours. Precautions should be taken to avoid insect, bird or rodent entrance or similar problems especially under farm storage conditions.

45. Low quality figs that are not destined for direct human consumption should be stored separately those intended for human consumption. The storage rooms should be disinfected with effective disinfectants. Areas like cleavage and cavity should be repaired and windows and doors should be netted. The walls should be smoothened and cleaned every year. The storage rooms should be dark, cool and clean.

46. The optimum storage conditions for dried figs are at temperatures of 5-10 °C and relative humidity less than 65 %.

3.9 PROCESSING

47. Dried figs are fumigated, stored, sized, washed, cleaned, sorted and packed in processing units. Among these processes, removal of aflatoxin-contaminated figs, storage and package material may exert the major impact on aflatoxin levels of the final products.

48. Dried fig lots entering into the processing plant must be sampled and analyzed as an initial screening for quality moisture content and ratio of bright greenish yellow fluorescent (BGYF) figs. Dried figs contaminated with aflatoxins have a significant correlation with BGYF under long wave (360 nm) UV light. BGYF may occur on the outer skin but also inside the fruit cavity; the ratio being dependent on the fruit characteristics and on prevalence of vectors. Nearly 50 % of the BGYF fruits were found to have aflatoxins whereas the remaining part had no contamination. Dried figs fruits are examined under long wave UV light and the fluorescent ones are removed to clean the party. Work conditions such as the length of working, break intervals, the aeration and cleanliness of the room, should provide worker safety and product safety (8, 19).

49. Contaminated figs must be separated, labelled and then destroyed in an appropriate manner in order to prevent their entry into the food chain and further risk of environmental pollution.

50. The moisture content and water activity level of dried fig fruits must be below the critical level (moisture content can be set at 24 %). Higher levels may trigger fungal growth and toxin formation. Higher water activity levels may trigger secondary aflatoxin/ochratoxin A formation in areas of high temperature storage at the processing plant or at retail level especially in moisture tight packaging material.

51. Dried figs are washed if demanded by the buyer. The water temperature and the duration of washing should be arranged according to the moisture content of the figs in order to avoid the elevation of the initial moisture content of fruits to critical levels. In case the moisture and water activity levels are increased, a second drying step must be integrated in the process. Quality of water should be suitable according to legislation. The water should have the specifications of drinking water.

52. Good storage practices must be applied at the processing plant and should be kept at this standard until the product reaches the consumer (see article 45).

53. All equipment, machinery and the infrastructure at the processing plant should not constitute hazard to health, and good working conditions should be provided to avoid contamination of figs.

54. These recommendations are based on current knowledge and can be updated according to the research to be pursued. Preventive measures are essentially carried out in fig orchards and precautions or treatments undertaken at the processing stage are solely corrective measures to prevent any secondary aflatoxin formation.

4. A COMPLEMENTARY MANAGEMENT SYSTEM TO CONSIDER IN THE FUTURE

55. The Hazard Analysis Critical Control Point (HACCP) system is a food safety management system that is used to identify and control hazards within the production and processing system. The general principles of HACCP have been described in several documents (10, 14).

56. The HACCP concept is an all-encompassing integrated management system. When properly implemented in the dried fig industry, this system should result in a reduction in the levels of aflatoxins observed in dried figs. The use of HACCP as a food safety management system has many benefits over other types of management control systems used in some segments of the food industry. In orchards, many factors that influence aflatoxin contamination are environmentally related, such as weather or toxigenic fungal population; these are difficult and sometimes impossible to control. After harvesting, critical control points may be identified for secondary aflatoxin production by fungi during storage. For example, a critical control point could be at the end of the drying process and one critical limit would be the moisture content or water activity.

57. It is recommended that resources be directed to emphasizing the Good Agricultural Practices (GAPs) at the pre-harvest level and Good Manufacturing Practices (GMPs) and Good Storage Practices (GSPs) during drying, storage, processing and distribution of various products. The ISO 22000 system should be built on sound GAPs, GMPs and GSPs

58. Integrated mycotoxin control programs should incorporate HACCP principles in the control of risks associated with mycotoxin contamination of foods and feeds.[11] The implementation of HACCP principles will minimize aflatoxin contamination through application of preventive controls to the extent feasible in the production, handling, storage and processing of dried fig crop. Since all countries may not have the required technical expertise and experience to collect risk information and establish effective integrated mycotoxin management systems, the Food and Agriculture Organization (FAO) has given high priority to the provision of training professionals in developing countries on the HACCP approach and its application.

59. The training of farmers, producers and processors, using the rapid tests for determination of aflatoxins, establishment of monitoring and surveillance programmes for aflatoxins requires suitably equipped laboratories, well-trained staff for both analytical and inspection activities, reliable analysis and sampling methods as well as application of analytical quality assurance programmes are important too.

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APPENDIX II

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