



Food and Agriculture
Organization of
the United Nations



World Health
Organization

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Agenda Item 11

CX/CF 15/9/10-Add.1

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**JOINT FAO/WHO FOOD STANDARDS PROGRAMME
CODEX COMMITTEE ON CONTAMINANTS IN FOODS**

9th Session

New Delhi, India, 16 – 20 March 2015

**PROPOSED DRAFT REVISION OF THE CODE OF PRACTICE FOR THE PREVENTION AND REDUCTION
OF MYCOTOXIN CONTAMINATION IN CEREALS (CAC/RCP 51-2003)**

Comments at Step 3 submitted by Egypt, Kenya, Sudan and BIO

EGYPT

Referring to your document CX/CF 15/9/10 concerning request for comments on proposed draft revision of the code of practice for the prevention and reduction of mycotoxin contamination in cereals (CAC/RCP 51-2003)

I would like to inform you that Egypt supports the above mentioned draft revision.

KENYA

We would like to thank the Electronic working group led by Brazil and appreciate the good work done.

COMMENT ANNEX 5

Kenya support the development of annex 5 (ANNEX 5 PREVENTION AND REDUCTION OF CONTAMINATION BY AFLATOXINS IN CEREAL GRAINS RECOMMENDED PRACTICES BASED ON GOOD AGRICULTURAL PRACTICE (GAP) AND GOOD MANUFACTURING PRACTICE (GMP).

COMMENT ANNEX 6:

Kenya supports the development of Annex 6—[ANNEX 6 PREVENTION AND REDUCTION OF CONTAMINATION BY Ergot and Ergot alkaloids IN CEREAL GRAINS and propose to delete the open and close square brackets.

SUDAN

Sudan is happy to express a high consideration for the excellent effort put, by Brazil, USA, Nigeria and the other members of the EWG, in this document.

Following are Sudan comments on some points in the document:

Ergot alkaloids:

Sudan supports the proposal of inclusion of an Annex for ergot alkaloids, but this is better preceded by a discussion paper to substantiate the provisions in the proposed Annex.

Justifications:

The following are some of the reasons that may justify the need for a discussion paper:

- Ergot alkaloids producing fungi namely *Claviceps purpurea*, *C. Africana*, *C.sorghii* and other related species have been reported in different African and Asian countries on many cereals.
- Reported health hazards associated with ergot mycotoxins in man range from vomiting, limbs lesions, impairment of mental functions, endocrine imbalance, foetal disturbance, convulsion and peripheral gangrene. Severe cases may lead to death. Cattle, sheeps and poultry are also sensitive to ergot toxins.
- Ergotoxins group, unlike other mycotoxins, are not carried on the kernel of the cereals. The sclerotia (fungus tissue which serve as resting body) contain the toxins and are carried as visible structures, with the kernels as concomitant contaminant. A different sampling plan and a different method of assessing the level of contamination, such as sclerotia count, instead of the usual chemical analysis, may be considered.

- It is not known if there are regulations, addressing health hazards associated with ergot alkaloids

Para. 1:

Line 2: "strains" to be changed to "races".

Justification:

Strain: a group of similar isolates descendant from a single isolation in pure culture.

Race: a genetically, and as rule geographically distinct mating group within a species.

The genetical and regional variations, rather than the cultural variation, that counts here.

Reference:

Phytopathological Paper, No 17.

A Guide to the Use of Terms in Plant Pathology

Prepared by:

The Technical Sub-Committee of the Federation of the British Plant Pathologist.

Commonwealth Mycological Institute.

Kew, Surrey, England.

Para.2 onwards:

Infection versus contamination.

Some mycotoxigenic fungi are saprophytes such as *Aspergillus spp.* and *Penicillium spp.* others are pathogens such as *Fusarium graminearum* and *Claviceps spp.* Throughout this document starting para.2 line 3 the terms "infection" and "contamination" have been used in a synonymous manner. We suggest to confine 'infection' to the pathogenic mycotoxigenic fungi and the term 'contamination' to the saprophytic ones and propose to revise this document accordingly.

Justification:

Infection: to enter (invade) and establish a permanent or temporary parasitic relationship.

Contamination: introduced accidentally in a substrate, should not be used as infection.

Reference:

Same as in the previous para.

Also see:

Codex Alimentarius Commission. Procedural Manual. Nineteen edition, definition of contaminant p.18.

Para.11

a-Line 3: add "/sequence" after rotation, to become: "crop rotation/sequence".

Justification:

a-A proper crop sequence is equally satisfactory option, if it is hard to adopt a rotation in the strict meaning of the agronomical term.

b-Table 1: in Sorghum column Sudan propose the following additions;

Fungi Potential of mycotoxins

Penicillium verrucosum Ochratoxin A

Aspergillus ochraceus

And related spp.

Claviceps purpurea Ergot alkaloids

C.africana, C.sorghum

And other related spp.

Justification: Ochratoxin A, Ergot alkaloids and their producing fungi are frequently reported on most cereals.

Para 47.

Line 3:the word “processing” may be changed to “treatment”

Justification:

Processing suggests change from one state to another. If this is not the idea” treatment” may be a better word.

ANNEX 1.

Para.1 to be amended as follows:

Good Agricultural Practices and Good Manufacturing Practices include methods to reduce *Fusarium graminearum* infection and zearalenone production in cereals during the crop growth and development, harvest, transport and processing.

Justification:

Of all the species of the genus *Fusarium* the species *graminearum* is the main producer of zearalenone.If this is not indicated clearly, a misunderstanding that all the spp. in the genus *Fusarium* produce zearalenone is certain.

Other suggested changes are meant for clarity and arrangements of sequence of events.

ANNEX 2.

Para. 1 to be amended as follows;

Good Agricultural Practice and Good Manufacturing Practice include methods to reduce *Fusarium moniliforme* (= *F.veticioides*)contamination/infection and fumonics production in cereals during the crop growth and development, harvest, transport and processing.

Justification:

Same justification,regarding the toxin producing fungi, as given in the previous para.

ANNEX 3.

Para. 1.to be amended as follows:

Good Agricultural Practice and Good Manufacturing Practice include methods to reduce the contamination by the producing fungi namely, *Aspergillus ochraceus*,*A. carbonarius* and *Penicillium verrocosum* and production of ochratoxin in cereals, during the crop growth and development, harvest, transport, storage and processing.

Justification;

As mentioned before, without giving the full name of the toxin producing fungus the statement becomes misleading.

Here “contamination” rather than infection is the proper term as the fungi involved are not pathogens,they are saprophytes.

ANNEX 4.

Para 1. to be amended as follows:

Good Agricultural Practice and Good Manufacturing Practice include methods to reduce infection/contamination with the toxins producing *Fusarium spp*, namely *F.graminearium* and other related *Fusarium spp*. and to reduce trichothecenes production in cereals, during the crop growth and development, harvest, transport, storage and processing.

Justification:

As in the previous paras.

Contamination /infectin,because fungi involved can be pathogens or saprophytes.

ANNEX 5

Para. 1 to be amended as follows:

Good Agricultural Practice and Good Manufacturing Practice include methods to reduce contamination with the producing fungi namely *Aspergillus flavus*, *A. parasticus* and to reduce aflatoxin production in cereals, during the crop growth and development, harvest, transport, storage and processing.

Para.4. to be amended as follows:

Biological control can be used for the management of aflatoxins, but the bioagent used must be approved by the relevant authorities safe to the environment and cost effective towards the targeted fungus.

General Comments

Good Agricultural Practices or Good Agricultural Practice

In the titles of ANNEX 1 and 5 and in paragraphs 1 throughout the five ANNEXES the word Practice is written in a singular form while in the titles of ANNEX 2,3, and 4 Practices is written in the plural form. Why ?

Good Manufacturing Practice

Throughout the five ANNEXES the word Practice in Good Manufacturing Practice is written in the singular form and never in the plural form. Why ?

If there is no justifications perhaps uniformity and consistency are needed.

BIOTECHNOLOGY INDUSTRY ORGANIZATION

Introduction

1. Mycotoxigenic fungi are prevalent in regions in climatic zones which allow for small and large scale cereal grain production. Although the species and strains may differ among grain producing regions, these fungi are present in soils, in wild host plant species, in the residues of cultivated crops and stored grains and in the dust in drying and/or storage facilities. The fungi are associated with both pre-harvest and post-harvest mycotoxin contamination in cereals.

2. The severity of pre-harvest fungal propagation is highly dependent upon weather conditions varying greatly from year to year in grain-producing regions. The severity of pre-harvest infection and propagation of mycotoxigenic fungi can also vary with the degree of damage caused by insects and other, non-toxicogenic fungi. Because of ~~this~~these factors, mycotoxin concentrations observed in grains at harvest vary widely from year to year. Reliable prevention of pre-harvest fungal infection has proven to be elusive, even with application of good agricultural practices (GAP) and commercially available fungicides. Cereal breeding has resulted in only modest gains in genetic resistance to the Fusarium ear blight (Fusarium head blight) of cereals in cultivars with acceptable quality, yield and tolerance to other important cereal diseases.

Tillage and Preparation for Seeding (Planting)

14. When available, grow grain varieties (cultivars) developed for resistance to both nontoxicogenic and toxicogenic fungi and insect pests (such as those that express insect protection traits) and for lower mycotoxin accumulation. Seed only those varieties recommended for use in a particular area of a country. Use registered seed treatments for control of fungal and insect pests, within an integrated pest management system.

15. As far as practical, crop planting should be timed to avoid high temperature and drought stress during the period of seed development and maturation. Predictive models, when available, could be used as a tool to plan for the best planting period.

16. Ensure appropriate density of planting by maintaining the recommended row and intra- plant spacing for the species/varieties grown. Information concerning plant spacing may be provided by seed companies, national authorities or extension services.

Preharvest

17. Where possible, minimize insect damage and fungal infection in the vicinity of the crop by proper use of registered insecticides, fungicides, biopesticides and other appropriate practices, within an integrated pest management program. Predictive models could be used to plan the best application time for and mode of pesticide application.