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Cereals and pulses — Determination of hidden insect infestation —

Part 1: General principles

Céréales et légumineuses — Détermination de l'infestation cachée par les insectes —

Partie 1: Principes généraux

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This document was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 4, *Cereals and pulses*.

This second edition cancels and replaces the first edition (ISO 6639-1:1986), which has been technically revised.

The main changes are as follows:

— according to the insect developmental stages causing damage, the definition and general of hidden infestation has been modified;

— the sampling location, time and period have been modified;

— rapid methods in Table 1 have been modified based on ISO 6639-4;

— some potential techniques in Table 2 have been added.

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Some species of adult insects are especially adapted to attack whole grains and normally spend a considerable part of the life cycle, including the entire larval feeding period, inside grains. Other species in their larval stage create an entrance hole within a grain, covering it after entry and an adult exit hole is created after the process of pupation, from which it then emerges. These insects constitute a hidden infestation that cannot readily be seen in consignments or samples (as opposed to an initial observed infestation).

Most insect pests of stored grains are very small, under 5 mm in length, cryptic in behaviour and dull in colour. Those that fly do so mostly in dull light or at high temperatures. Thus, even when they are living freely outside the grains, and do not constitute a hidden infestation as described above, they are not easy to detect unless populations are large enough to induce noticeable activity.

Being mobile, at least in the free-living form, insects are capable of moving through a bulk of grain and tend to concentrate in those parts of the bulk most favourable for feeding and breeding. Such centres of insect activity are not necessarily static; they can expand, contract or move for many complex reasons. The most important reasons are changes in the physical condition of the grain (e.g. temperature and moisture content) and overcrowding of the insects due to rapid breeding. Thus, the distribution of insects in a bulk of grain is rarely random, and their detection requires specialist knowledge and techniques.