

## INSECT PROBLEMS IN STORAGE AND CONTROL TECHNIQUES UNDER INDIAN CONDITIONS

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(This paper has been published elsewhere and is presented as an abstract for informational purposes. Those interested should contact the author for additional information.)

**ABSTRACT:** Nearly one thousand species of insects have been found associated with stored products in various parts of the world. The majority of the insect pests belong to the order Coleoptera and Lepidoptera, which accounts for about 60% and 8-9% respectively of the total number of species of stored product insect pests.

Under Indian conditions the most important insect pests of stored grain are *Sitophilus oryzae* Linn. (rice weevil), *Rhizopertha dominica* Fab. (borer beetle), *Trogoderma granarium* Everts (khapra beetle), *Sitotroga cerealella* Olivier (grain moth), *Corcyra cephalonica* Staint. (rice moth), *Ephestia (Cadra) cautella* Water. (fig or almond moth), *Callosobruchus maculatus* Linn. (pulse beetle), *Tribolium castaneum* Herbst (rust red flour beetle), *Oryzaephilus surinamensis* Linn. (sawtoothed grain beetle), *Latheticus oryzae* Water. (longheaded) flour beetle), and *Plodia interpunctella* Hübner (meal worm moth).

Out of the various stored product insects, eleven species of insect are mainly responsible for damaging stored food grains/milled product/pulses, etc. under Indian conditions.

The role of various environmental factors, viz. temperature, relative humidity of the environment, moisture content of the grain, food, etc. which affect the rate of metabolism, growth, development, reproduction, general behaviour, and distribution of the stored product insects have been described in the paper.

Various technologies of insect control, viz. (1) Hygiene Technology, (2) Hermetic Technology, (3) Mechanical Technology, (4) Physical Technology (a) Drying of Grain (b) Heat Treatment (c) Cold Treatment (d) Use of Radiant Energy (e) Use of Ultra-violet Light and X-rays (f) Use of Aeration (g) Atomic Energy (h) Mixing of Inert Dusts (i) Use of Centrifugal Force (5) Chemical Technology (i) Surface Treatment (ii) Dusts (iii) Fumigation, (6) Biological Technology, which have been employed for minimizing insect activities have been described.

Forty-three references have been cited in the paper which illustrate the work of the author on insect problems in storage and control techniques under Indian conditions.