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National Agricultural Research Institute

Pest of Stored Grains

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Introduction

Rice can store longer then most traditional food crops in Papua New Guinea after harvested, either with husk or milled. It is easy to transported over long distance and is convenient to used in times of natural disasters.

Many types of insects attack rice grains in storage. The high temperature in Papua New Guinea favor rapid development of insects in the grains. As Rice grains are small, the damage is usually severe than the larger grain seeds like maize.

It is important to prevent insects from damaging the grains in storage. Grains damaged by insects reduce in weight by up to 10% and eating quality.

Example: A farmer store 100kg of rice and is infested with insect pest, he will be left with only 90kg.

In this situation, the first step is to identify the insect pest. The most common insect pests of stored rice in Papua New Guinea of which attack rice product , are

Rodents

Norway Rat is larger than the roof rat and the small house mouse.
All rodents feed, construct nest and leave their droppings amongst the grain This result in lost in both quality and quantity of grains in storage.
The life cycle is approximately 109 weeks with a life span of 9-12 months.

Figure 5: Adult house mouse

Tropical Warehouse Moth (*sitotroga cerelella)*

Minimum life cycle 25 days.
Female lay up to 300 eggs.
They are short lived and do not feed but actively fly around at dawn and dusk.
Larvae move over food produce, spinning threads, particularly as pupation approaches. This thread from thick webbing over the food and it is difficult to remove.

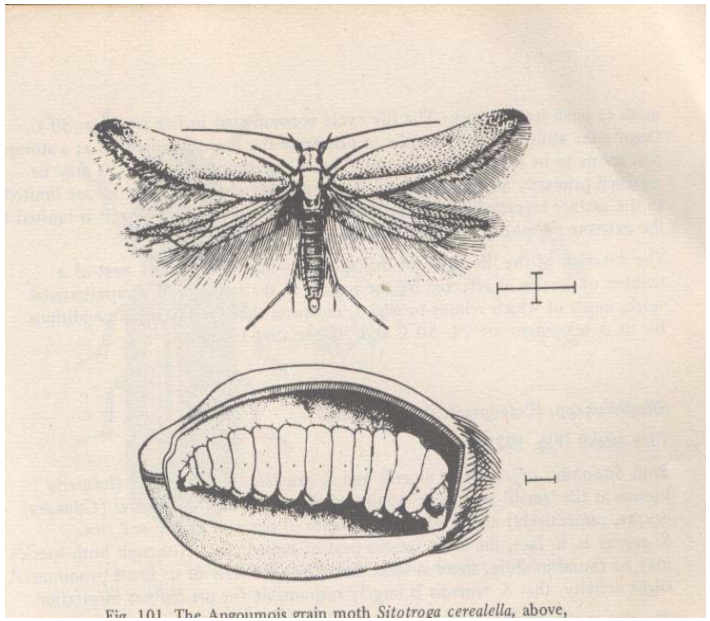

Figure 4: The Angoumois grain moth *sitotroga cerelella,* adult and mature larva within grain

Rust Red Flour Beetle (*Tribolium castaneum*).

Minimum life cycle 20 days.
Larvae attack cereal embryos.
Adults can live up to 18 months and consume grain during this time
A female adult produces about 450 eggs.

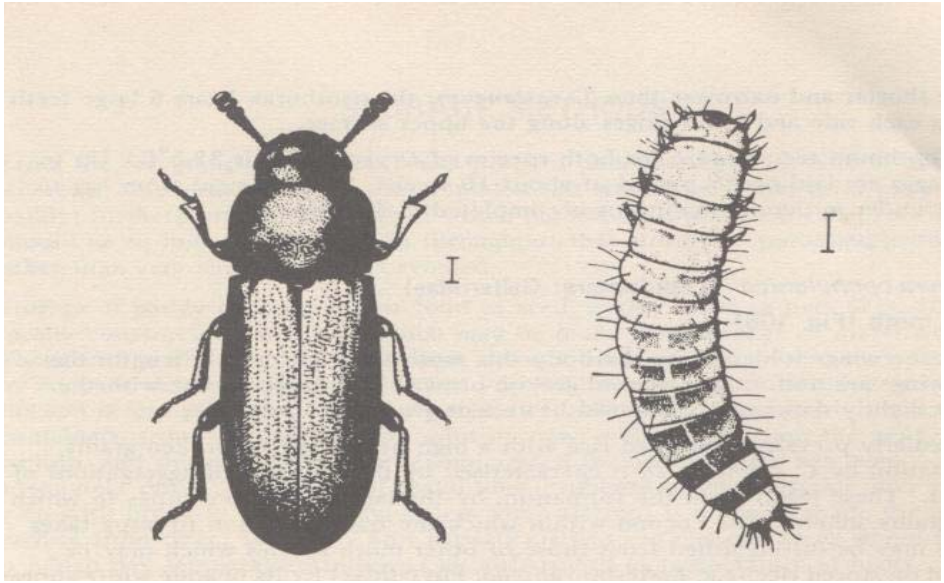

Figure 1. The rust red flour beetle. **(***Tribolium castaneum***).** Adult and larva**.**

Rice Weevil (Sitophilus oryzae)

Minimum life cycle 4 weeks
Eggs laid in stored grain or in the field by flying adults.
Larvae feed in grain and cannot be easily detected.
The adult feed on the outer grain.

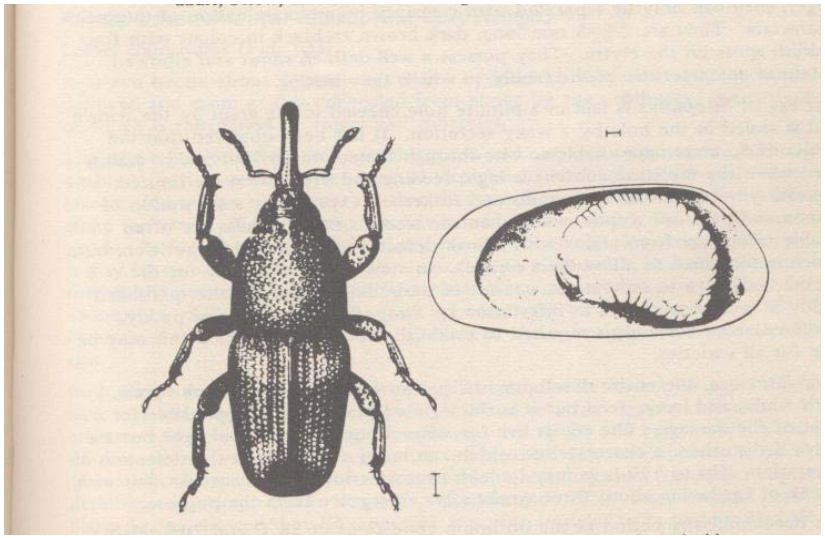

Figure 2: The rice weevil (*Sitophilus oryzae)*
Adult and larva inside the grain

Lesser Grain Borer (*Rhizopertha dominica*).

Minimum life cycle 25 days.
Female lay up to 500 eggs.
Larvae eat into grain and feed on grain dust.
Pupae usually form inside grain.
Adult also feed and are long lived compared to other beetles, pests of stored food product.

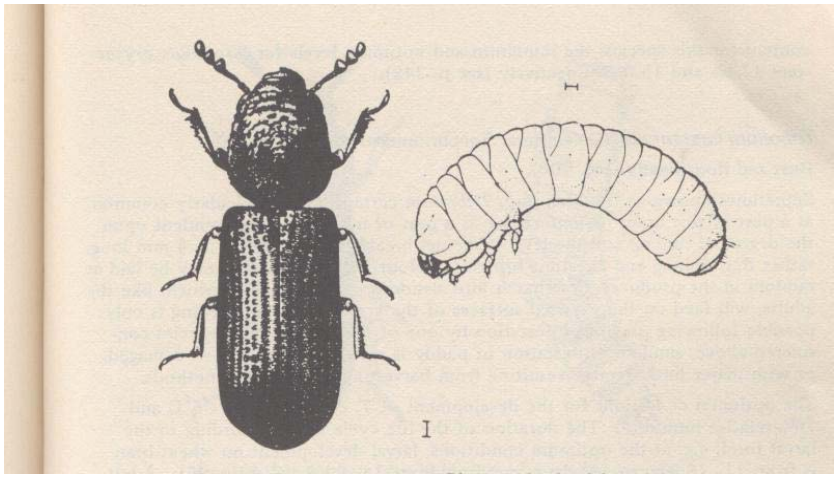

Figure 3: The lesser grain borer (*Rhizopertha dominica*)
Adult and Larva