



Pest Control No. TPC4

Lesser grain borer, *Rhizopertha dominica*

The Lesser grain borer (LGB) was originally described from South America but now has spread around the world especially to warm and tropical areas like Australia and India where it causes considerable damage to stored grain.

Host plants

Lesser grain borers attack most stored grain and sometimes can cause damage to cassava and flour.

Symptoms

Lesser grain borers cause damage to stored produce causing characteristic holes and tunnels. Infestations of LGBs do not occur before the harvest. LGBs bore into seeds if the moisture content is of more than 8%. Adults do this as a way of feeding and the young as a place to pupate.

Description of pest

The adult is a very small dark coloured beetle (2 to 3 millimetres), with the typical cylindrical, sculptured body shape of a borer and a head lower than the body.

Life cycle

The eggs are laid between the grain or in crevices in storehouse walls. Rough surfaces are preferred to smooth ones. LGBs can live up to 30 days at 34° C. Breeding is continuous in warm conditions. The eggs hatch into larvae which bore into the grains, where they pupate.

Prevention and control

Grain status: Unripe grain should not be stored. Unripe grain is very soft and the husks are loose which makes them very attractive to LGBs.

Handling grain: Care should be taken when handling the grain as any cracks or scratches will be taken advantage of by the LGBs.

Store temperature: The lowest temperature that LGBs can survive at is 18° C, so if temperature can be lowered, this will reduce infestation.

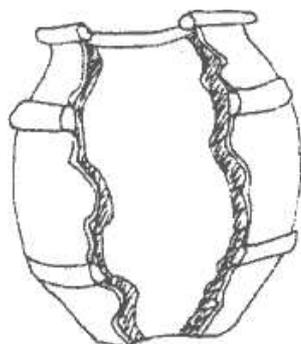
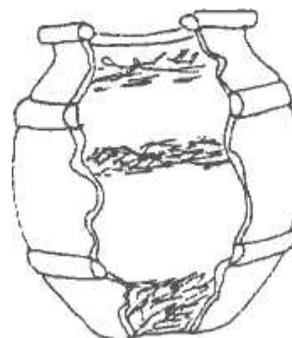
Store hygiene: Important methods of prevention for grains that are stored indoors include sound buildings which are kept clean (grain on the floor is swept away), and inspection of the grain before it is stored.

Plant preparations

Neem powder (*Azadirachta indica*): This can be made from dried crushed kernels. The Indian Research Institute conducted trials that show the effectiveness of mixing neem powder for the control of rice weevils and khapra beetles as well as LGBs. Volumes of 0.5%, 1% and 2% of powder mixed with wheat protected the seed for 269, 321 and 379 days respectively. This preparation is good for small quantities and is also effective for legume seeds.

Neem oil: This can be made by hand by lightly crushing dried neem kernels in a mortar to remove outer layers. The husk can be removed by winnowing. Then, the seeds are pound in a mortar to a brown sticky paste. A little water is added and the paste forms a stiff ball. This should be kneaded over a bowl until oil appears. The ball should be squeezed to extract as much oil as possible and the process of kneading should be repeated. 1 kilograms of kernels should produce 100 to 150 millilitres of oil. A machine would double the amount of oil obtained. Heating is not known to affect the insecticidal properties of the oil. 2 to 3ml of oil should be mixed well into 1kg of grain for good protection. To remove the bitter taste of neem the grain should be covered with hot water and drained before eating.

Neem leaves 1: Fresh neem leaves should be put at the bottom of the storage container. 30cm of sun dried grain should be placed on top followed by another layer of neem leaves.



Neem leaves 2: Dried neem leaves can be made into a paste by crushing them and adding water. This mixture can be used to line the walls of a container. Leaves should be placed on the bottom of the container, the grain can be poured in and then another layer of leaves should be put on top of the grain to seal it.

Sweet flag powder (*Acorus calamus*): This can be made from crushing the rhizomes (roots) and adding 1kg of this powder to 50kg of grain.

Turmeric powder (*Curcuma domestica*): This is made in a similar fashion to the sweet slag and is mixed at 2% of the stored produce.

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