

Cotton seed and boll rot– Queensland fruit fly may carry causal organism

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Cotton seed and boll rots are caused by a number of organisms including fungi and bacteria. Recently we isolated the bacterium, *Pantoea agglomerans*, from rotten bolls. A survey on boll rots across cotton growing areas this past season revealed that up to 90% bolls carried this bacterium. The same bacterium was identified in the USA as a causal agent of boll rot.

Can sucking pests transmit this bacteria?

Scientists in the USA established that green vegetable bugs (GVB) transmitted this bacterium into cotton bolls. While we have not yet established the role of GVB in transmitting bacterium into bolls, we have identified that fruit flies may be responsible here. At the Kingaroy Research Station maggots were found inside bolls that appeared undamaged on the surface. The flies may lay eggs on the surface of the boll and newly hatched maggots bore through feeding wounds caused by sucking pests, carrying the bacterium with them.

Damage Symptoms

Infected bolls appear undamaged on the surface but feel soft when squeezed. Inside these bolls maggots were clearly visible. Locks were pinkish-brown/brown and squishy, usually watery in younger bolls (15 to 20 days old) and drier in mature bolls (above 20 days old). Maggot feeding holes were clearly visible in the affected locks in mature bolls. Once these bolls opened, locks were tight and un-harvestable. Observations on fly activity at different stages of boll development suggests that flies prefer older bolls. This behaviour may be driven by the fact that older bolls will split or open earlier than younger bolls, thus allowing the maggots to leave the bolls and pupate in the soil.

The maggots were reared out to adult flies and identified as *Bactrocera tryoni*, *Atherigona orientalis* and *Chloropsina sp.*



B. tryoni

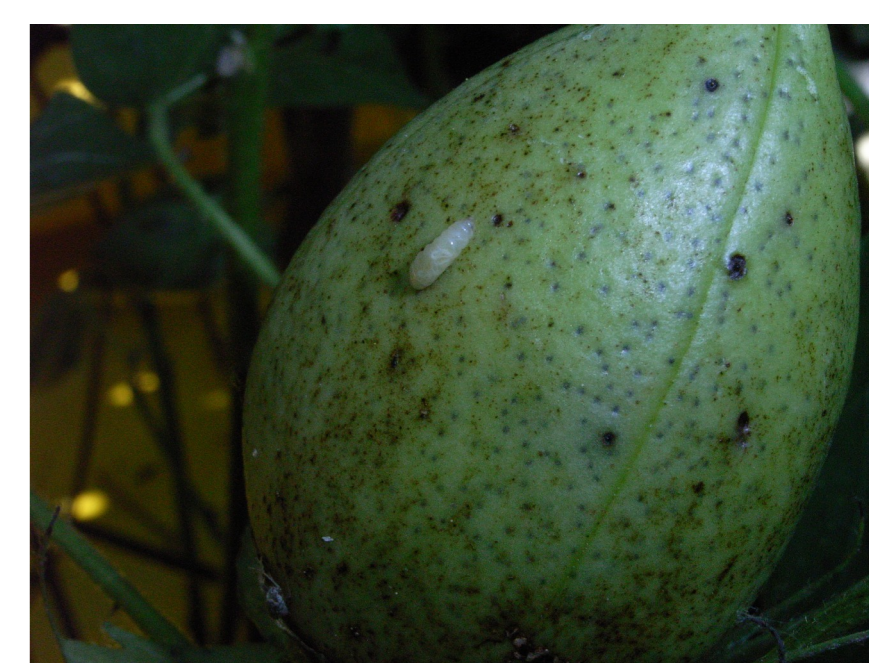


A. orientalis



Chloropsina sp.

Maggots may bore through the feeding wounds caused by sucking pests



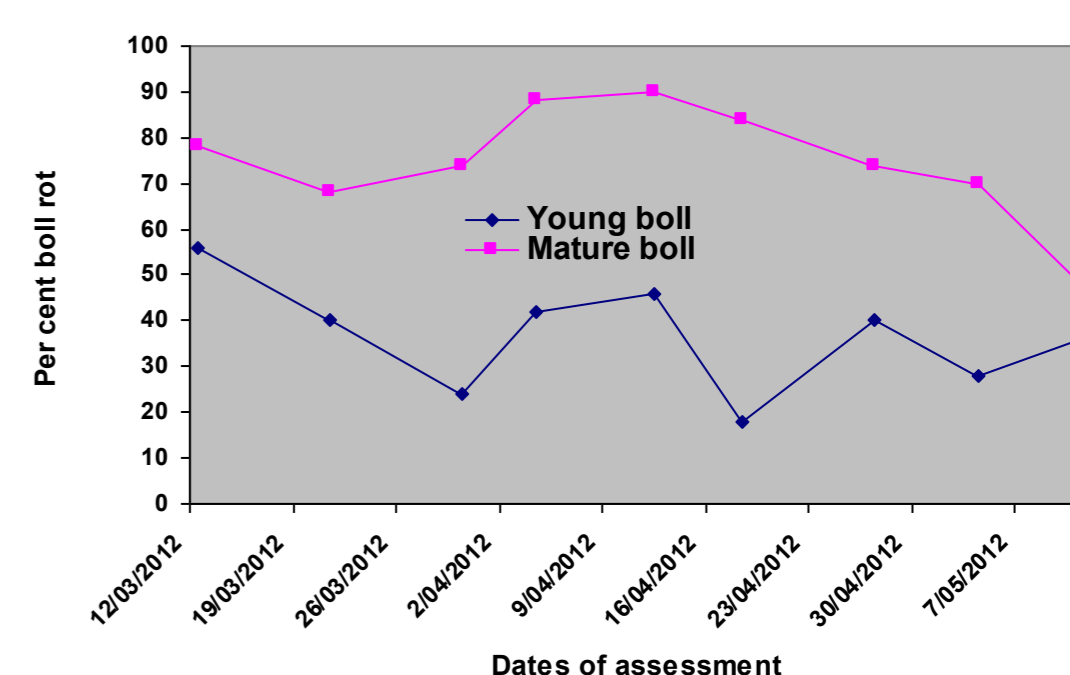
Maggots inside infected young boll. The brown locks are squishy and watery

Maggots inside infected mature boll. Locks are dry with feeding holes.



Tight locks in an open boll

Maggot infestation over time at the Kingaroy Research Station



Conclusions

This is the first report that fruit flies may be associated with boll rots in Australia. At this stage, it is still unclear whether the joint occurrence of flies and boll rots is simply coincidental, or that flies play a role in causing boll rots. More detailed research is needed on the relationship between the flies, the transmission of bacteria and boll rots in order to develop a management strategy for these pests.



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