

Status quo regarding the distribution of the macadamia felted coccid in the Barberton/Nelspruit/White River area

The macadamia felted coccid was accidentally introduced to South Africa during 2017. Initially infested plants were moved from Barberton to White River, the North Coast as well as the Ohrigstad area. The ability of this insect to disperse on its own is astonishing and by 2021 several secondary and tertiary infestation sites were already recorded throughout the production region (Fig.1A). This trend continued during the current production season with several new recorded infestations (Fig.1B).



Fig 1. Distribution of the macadamia felted coccid during A: 2020/21 and B: 2021/22 seasons.

Why are so worried about this pest?

- 1) It is a true cryptic pest and during early stages of infestation it is very easily overlooked.
- 2) During later stages it causes chlorosis of the inner leaves, quickly followed by dieback of twigs and rapidly thereafter of the main scaffolding branches.
- 3) Stress induced by scale encrustations could predispose trees to secondary pests such as bark borers or endophytic fungi such as *Botryosphaeria* (causal agent of branch dieback).
- 4) There are currently no pesticides registered for the control of this insect in South Africa. Products used in other crops (such as citrus) or in Hawaii on macadamias are effective and registrations should be pursued.
- 5) These products are sprayed at high volumes (more than 10 000L/ha) to ensure that tree trunks and main scaffolding branches are adequately protected by pesticides, and this obviously comes at an ecological as well as monetary premium.
- 6) SAMAC is currently funding a classical biological control project to import a natural enemy *Metaphycus macadamiae* from Australia via Hawaii. This parasitoid will only work effectively if we reduce contact sprays directed at other pests such as the two spotted stink bug or thrips.

Photos courtesy of Dr Colleen Hepburn



How to monitor for the macadamia felted coccid

There are many similar looking scales on macadamias, but the following should be regarded as a broad guideline:

- 1) Male scale coverings are slenderer and are whitish in colour. Males resemble tiny wasps and can fly, while females cannot move. Female scale covers are larger than that of the males with a very characteristic opening on one side. Just after moulting these scales are white in colour but quickly turn yellow.
- 2) These insects affect all aboveground parts of the trees such as nuts, leaves, twigs as well as the main stem.
- 3) On leaves they prefer to cluster on the mid rib as well as along the margin while adults are also normally very conspicuous this time of year (autumn) on harvested nuts.
- 4) Scouts should look out for dead leaves on the insides of trees during their weekly scouting sessions.
- 5) When these insects have been observed on the nuts, closer inspection of the main trunk, leaves as well as nuts should be made.
- 6) Remote sensing can be used to monitor tree stress caused by established coccid infestations but unfortunately, recent infestations are difficult to detect with this methodology.
- 7) According to Pherobase (www.Pherobase.com) no pheromones have been isolated for this species.

Conclusions

It can now safely be concluded that the macadamia felted coccid is well established in the Barberton/White River/Nelspruit production region. Our focus should now shift to adopting technology that will increase levels of biological control of this and other pests as frequent usage of broad-spectrum pesticides will lead to flare ups of this pest with its associated problems. It is also important to ensure that the importation of the biological control agent as well as the concomitant development of appropriate biological insect management techniques be regarded as high research priorities.

New quarantine regulations

In *Government Gazette No.46207: Amendments to Control Measures R.110 of 27 January 1984 with Amended Control Measures R.1998 of 08 April 2022 in terms of the Agricultural Pests Act, 1983 (Act No.36 of 1983)* the macadamia felted coccid was added to the list of regulated pests under official control.

The Regulations stipulate the following:

- 1) Nurseries have to ensure plants in nurseries are free from MFC based on visual inspection and tests, and no one is allowed to move plant material unless free from MFC.
- 2) No one is allowed to move plant material from any land where MFC occurs, is suspected to occur or any quarantine areas.
- 3) Nurseries and landowners can apply for permits to be exempted from certain prohibitions/obligations.
- 4) Compulsory notification of new cases outside of affected areas.
- 5) Failure to comply can lead to destruction of plants, plants being sent back to quarantine areas or a person being subject to an offense if above regulations are violated.

For pest occurrence/suspected occurrence reporting, you may contact Ms Julie Mokwele; e-mail: JulieM@Dalrrd.gov.za; Tel: (012) 319-6104 or Mr Jan Hendrik Venter, The Director Plant Health.

For removal permits: RemovalPermits@Dalrrd.gov.za/ GodfreyM@Dalrrd.gov.za; Cell: 0739236465; Tel(012) 309-8773: Directorate Inspection Services.