



IPM IN PRACTICE: SIREX



DAMAGE-CAUSING SPECIES

- *Sirex noctilio*
- *Sirex* wood wasp
- Origin - Eurasia and North Africa

BIOCONTROL AGENTS

- *Deladenus siricidicola*
- Parasitic nematode
- Origin - New Zealand
- *Ibalia leucospoides*
- Parasitic wasp
- Origin - North America

DAMAGE CAUSED

- *S.noctilio* deposits two eggs, a symbiotic fungi and phytotoxic mucus into the tree.
- The mucus causes tree needles to stop functioning and dry out.
- The larvae feed on the fungi while tunnelling through the tree towards the heartwood, before turning back to the sapwood and creating a 'horse-shoe' tunnel. The adult finally bores out of the tree producing the large round emergence holes.

Symptoms include wilted pine needles, turning yellow and then brown, leading ultimately to tree death.

ALTERNATIVE CONTROL MECHANISMS

Cultural control

All pine species are susceptible to *S.noctilio*. Unless the industry stops planting pine which would have huge economic and employment ramifications, there is no alternative. That said, stress is also a major factor, as *S.noctilio* is attracted to stressed trees. Removing man-made stress factors - seedling quality, poor planting and silvicultural practices, as well as minimising those biotic and abiotic stress factors - will help to mitigate stress.

No chemical control alternative

The nature of the pest, its mode of action and the scale of the problem make chemical control unfeasible.

WHY BIOCONTROL?

- Biocontrol has been shown to be an effective, long-term, sustainable solution to the *S.noctilio* control in South Africa.
- This view is supported by a growing bank of international research on *Sirex*.

Between 2007 and 2018, the South Africa Sirex Control Programme reduced Sirex-related pine losses by R404 million.



MODE OF ACTION

- *D.siricidicola* in combination with *I.leucospoides* can achieve over 75% parasitism.
- Both have become effectively established, with *S.noctilio* actually spreading *D.siricidicola*.

Southern African Sirex Control Programme (SASCP) is in the process of sustaining an *I.leucospoides* population.

RELEASE INFORMATION:

Summer rainfall areas

- *D.siricidicola* - Mid-February to April.
- *I.leucospoides* - November to January to coincide with *S.noctilio* emergence period.

Winter rainfall areas

- *D.siricidicola* - May to July
- *I.leucospoides* - December to April

Innocation and releases done by the South African Sirex Control Programme based on infestation information from trap tree plots and National Monitoring Programmes

SUPPLIER:

Southern African Sirex Control Programme

www.fabinet.up.ac.za/index.php/sirex-home

LINKS:

- www.fabinet.up.ac.za/index.php/sirex.home
- www.icfr.ukzn.ac.za/publications
- www.fabinet.up.ac.za/publications