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**Biological Control of Sirex noctilio
First Report: June 1995**

The biological control of Sirex noctilio using the virulent Kamona strain of the parasitic nematode Deladenus siricidicola is well under way in the south-western Cape. Over 150 P. radiata trees in Tokai and Cecilia Plantations were inoculated between the 24 - 27 May. These trees varied in age from 19 years to 52 years old with most being at least 39 years old. For this reason the number of holes punched in the trees were increased because the 50 holes per tree were recommended for Australian trees of about 15 years old and this was not regarded as sufficient for the huge trees inoculated in South Africa.

The identification of Sirex-infested trees has improved dramatically through experience and of the 150 + trees inoculated recently, 98 % were correctly identified. Many of the trees still had dead Sirex wasps attached to them and a few had live wasps still in the process of ovipositing.

The next nematode consignment will be used to inoculate trees in the front of the Sirex dispersal and to date 44 trees infested in Grabouw Plantation, six at Jonkershoek and nine at La Motte have been identified as containing Sirex larvae. Between consignments the search continues in all plantations in the south-western Cape for further Sirex-infested trees not identified as such up until now. Further releases will be made in both Tokai and Cecilia Plantations.

The Keith Turnbull Institute in Victoria (Australia) has relinquished the rearing of the hymenopterous parasites of Sirex and this is to be taken over by the National Sirex Co-ordination Committee. Parasites should be available to the forest industry in Australia before the emergence of Sirex wasps in November 1995. The two most effective of the hymenopterous parasites released in both Australia and New Zealand are Ibalia leucospoides and Megarhyssa nortoni and it is essential that they be imported into South Africa for similar control to be achieved here as is found in New Zealand, Tasmania and Victoria. Contact has been made with the National Sirex Co-ordination Committee with a view to purchasing these parasite species and the opportunity should be taken now while they are in the process of rearing them for their own purposes as the price will be much lower than if they were rearing them for South Africa alone. As more details become available they will be communicated to all concerned.

The reports on the visit of G. Tribe to Canberra to learn the rearing and release procedures for the nematode parasite are available. A manual has also been compiled detailing the entire procedure used in rearing the nematodes should this become necessary in South Africa. The choice exists between rearing the nematodes each year in South Africa or purchasing them from Australia. The high-tech equipment and manpower required for the former proposal, and the relatively small numbers of nematodes needed in South Africa at this stage will

probably make the purchase of nematodes directly from Australia a more cost effective option. However, should Sirex disperse beyond our borders into neighbouring states, the former option may then become cost effective.

Because of the effective forest hygiene carried out in the south-western Cape plantations to curtail Sirex, many of the Sirex infested trees had been removed by the time they were needed for inoculation with the nematodes. So the numbers of nematodes imported this season will be drastically reduced to accommodate the reduced number of Sirex infested trees available. Next year this will be much more accurately predicted with considerable savings in the number of nematodes purchased from Australia.

Samples of the logs infested with the parasitic nematodes will be taken later in the year to ascertain whether live nematodes are present in the trees. Samples of emerging Sirex wasps in November will be dissected and the percentage infested with the nematodes will become clear. If with the first consignments we are able to get the nematodes established in South Africa, the long term biological control of Sirex will have been assured. It only remains then to move the parasites to the front of the Sirex expansion to minimise the loss of trees. Once both the nematode and hymenopterous parasites are found throughout the Sirex infested areas, and Sirex has reached its maximum expansion, an equilibrium will have been established and Sirex will be under firm biological control. However the possibility will always exist that should this equilibrium be affected in any way a resurgence (possibly locally) of Sirex could occur.