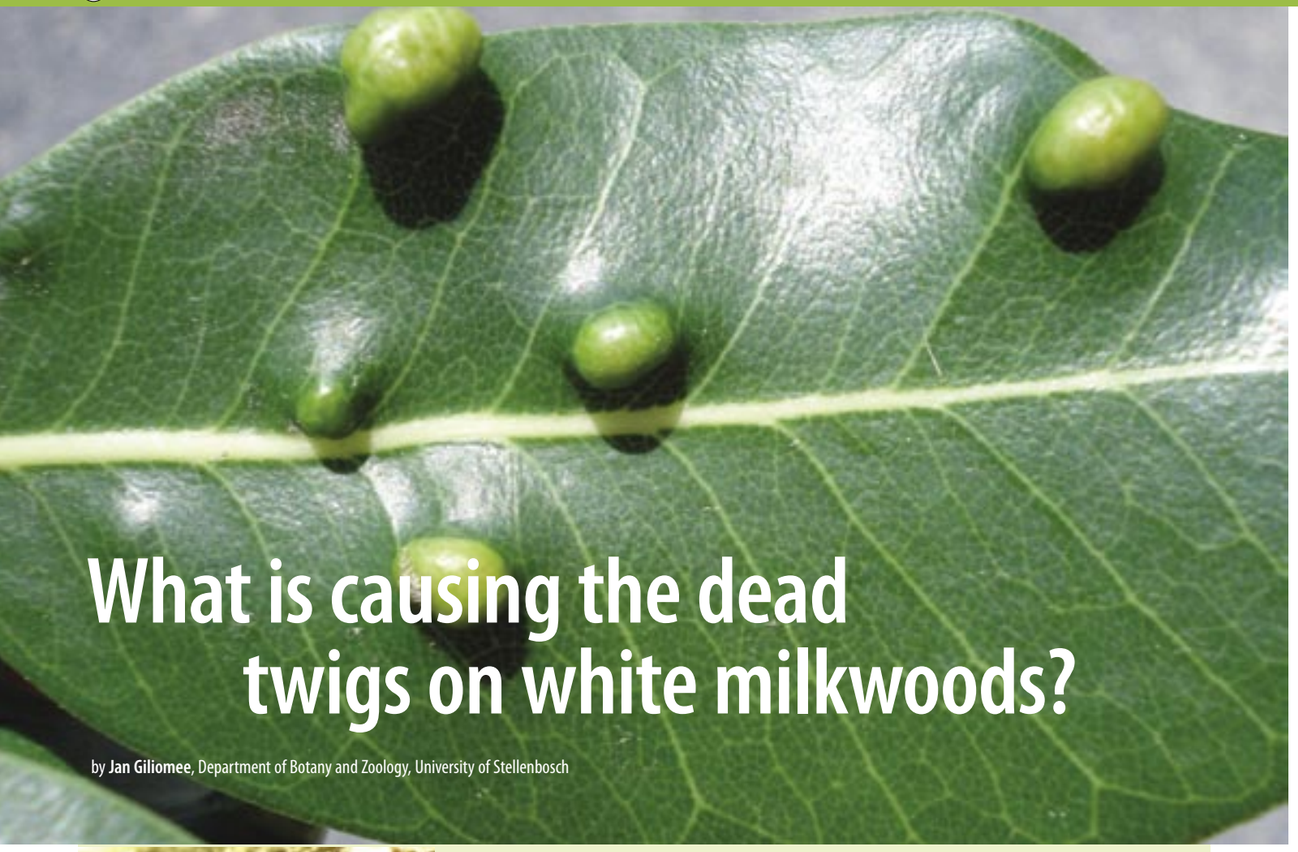

What is causing the dead twigs on white milkwoods?

by **Jan Giliomee**, Department of Botany and Zoology, University of Stellenbosch

ABOVE: White milkwood with dead twigs.

ABOVE: Galls on a leaf of white milkwood caused by *Dasineura* mites.
LEFT: *Dasineura* mite larvae inside a gall.

From Vermont and Hermanus to Stilbaai and beyond, white milkwoods, *Sideroxylon inerme*, can be seen with dead twig tips. These brown tips are particularly conspicuous during the summer and autumn months and only becomes less so when the dead leaves drop off during winter. What is causing this?

If you examine a milkwood twig to find out, the first things you would probably notice are numerous small galls on the leaves. These galls consist of a capsule, hairy inside, with an opening to the underside of the leaf. If you cut through them, they appear to be empty. However, if you examine them under a stereomicroscope you would see small, white, worm-like organisms slowly moving around. They are mites from the mite family Eriophyidae (that belong to the subclass Acari or Acarina, and typically have four legs). The Eriophyidae is a very big family of gall- and blister-forming mites ('knoppiesblaarmyte' in Afrikaans). Many species are host specific and many of our trees and shrubs have their own species of eriophyid mite. Two species were described from white milkwood by Meyer and Ueckermann (see further reading list below), *Eriophyes emphlopei* and *E. inermae*. But they are certainly not causing the dead twigs, as some people might think.

If you keep the milkwoods under regular observation, you will notice that new growth appears from April and the shoots extend throughout the winter months. During October some of the young shoots start wilting. The wilted parts eventually die off and become the conspicuous brown tips. If you examine the shoot you will notice a swelling or gall about 7-15 cm from the tip from where the drying of the twig started. On the surface of the swollen area, small holes can be seen under a microscope. These must be the exit holes of the organisms that caused the galls. At this stage it is unlikely that you will find any live organisms inside the gall. So what caused the gall and destroyed the vascular bundles, the transmission lines of the plant sap?

The real culprits

During September I found a number of small, orange larvae (maggots) in tunnels inside the galls. These were the real culprits! They were the larvae of a family of gall forming midges, the Cecidomyiidae. I was going to Washington at the time and took them to Dr R.J. Gagné of the US Department of Agriculture, an expert on the family. He identified them as 'a species of *Dasineura* in the broad sense'. They are therefore related to *Dasineura dielsi*, the species introduced from Australia to control seed formation in the invasive rooikrans, *Acacia cyclops*. (This species cause the plant to form a cluster of round galls instead of seed pods.) However, for better determination and to establish whether the milkwood species is new and undescribed, as I suspect, the adult males need to be found. To obtain them, infested galls would have to be kept in a container until the larvae emerge to pupate, which normally would probably take place in the soil.

Interestingly, some of the galls I examined contained the frass of caterpillar larvae. It is not clear whether they were also a primary cause of galls or whether they invaded the midge galls.

So, step by step we are making progress in understanding the cause of the dead twigs. Although they are rather unsightly, gardeners should not be too concerned about them as the tree will not die as a result. Perhaps they should be seen as nature's way of pruning our milkwoods!

Get connected: Jan Giliomee can be contacted at *jhg@sun.ac.za*.

FURTHER READING

Meyer, M.K.P. & Ueckermann, E.A. 1989. African Eriophyoidea: the genus *Eriophyes* von Siebold, 1851 (Acari: Eriophyidae). *Phytophylactica* 21, 331-342.

WHAT DOES THAT MEAN?

galls Plant galls are abnormal growths of plant tissues caused by various parasites, from fungi and bacteria to insects and mites.
larva (plural: **larvae**) The immature stage of a species that metamorphoses. Metamorphosis usually proceeds in distinct stages, starting with larva, passing through pupa and ending as adult.
mite An invertebrate (animals without backbones) that belongs in the class Arachnida and the subclass Acarina (also known as Acari), as do ticks. Mites are among the most diverse and successful of all the invertebrate groups. Many live freely in the soil or water, but there are also a large number of species that live as parasites on plants or animals.

Disa explosion

ABOVE: *Disa* hybrids at La Motte create an explosion of colour in one of the biggest private collections of disas in the world.
ABOVE CENTRE: The greatest advances made at La Motte have been in the range of yellow *Disa* hybrid flowers.
ABOVE RIGHT: Visitors to La Motte Wine Estate are welcome to purchase disas as cut flowers or potplants on the farm, from mid October until mid February.
RIGHT: Graham Duncan, bulb guru from Kirstenbosch (left) and Neels van der Linde, La Motte horticulturist, discuss cultivation techniques. Some of La Motte's *Disa uniflora* hybrids can be seen in the background.

In 2005, La Motte wine estate in the Franschhoek valley acquired a fabulous collection of disa hybrids from Prof. Sid Cywes, who had built up the collection over a period of thirty years. Under horticulturist, Neels van der Linde, La Motte is continuing to breed these beautiful indigenous orchids for the local and overseas market. Only a few types of *Disa* lend themselves to being cultivated artificially, and La Motte, has successfully cultivated new disa hybrids with names like 'Kalahari sunset', 'Hot fire' and 'Fire bolt', in specifically designed greenhouses. La Motte prides itself on the leading role it plays in biodiversity and nature conservation in the Franschhoek valley and recently the wine estate, under Pietie le Roux, viticulturist and Senior Farm Manager, became the latest Wine and Biodiversity Initiative Champion. The estate also grows the indigenous blushing bride, *Serruria florida* and produces essential oils from lavender and the indigenous rose geranium, all in accordance with organic principles. Visit their website at *www.la-motte.com*.