

Stumpout®: a fungal inoculant to prevent resprouting of cut stumps of black wattle (*Acacia mearnsii*) & golden wattle (*A. pycnantha*)

The Acacia Wood Rot Fungus, *Cylindrobasidium laeve*

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Background

The fungus *Cylindrobasidium laeve* was isolated from dead black wattle (*Acacia mearnsii*) stumps near George and Joubertina in the Western and Eastern Cape, and is indigenous to South Africa. The fungus was then developed into Stumpout®, a user-friendly and affordable treatment to prevent cut stumps of black wattle and golden wattle (*A. pycnantha*) from resprouting after felling. This prevents multi-stemmed trees from developing and which are more difficult and costlier to control.

Environmental impact

In addition to its user-friendliness and affordability, Stumpout® is an environmentally friendly product. It has none of the negative environmental impacts of chemical herbicides, especially those used in a diesel carrier. It is particularly suitable for use in areas close to water sources where herbicide application can lead to contamination of the water.

Cylindrobasidium laeve is not a pathogen (an organism that causes disease) but rather is a saprophytic (feeding on dead matter) wood rotting fungus. In the natural environment it is one of many fungi involved in the decomposition of wood. It is therefore unlikely to spread to any close-by living trees and attack them, not even pruned fruit trees.



Formulation

The fungus is grown on sterile wood discs of *A. mearnsii* at 18°C. When enough spores have been produced, they are brushed off the discs and into sterile mineral oil, an inert carrier. Talcum powder is added to the oil which is then packaged in plastics sachets and stored in the fridge. Production of Stumpout® takes about 25 days.

Method of Use

Sachets should be stored in the fridge until the day they are used. They may be stored for up to three months in a fridge before use. While in the field, keep the sachets in the shade, preferably in a cool box with ice packs. Avoid leaving them in direct sun as the high temperatures reached will kill the spores. Only take one day's supply into the field.

Before using a sachet, rub it well between your hands, to resuspend the spores in the oil. Mix the contents of the sachet well with 400 ml cooking (sunflower) oil. Using a small brush or an oil can, dab approximately 0.5 ml of the mix in the centre of the freshly cut stump (stumps up to approximately 5 cm diameter), or on larger stumps apply 1–2 ml sparsely in a circle around the outside of the stump. The oil mixture should be applied to the stump as soon as possible after felling the tree, but no later than 30 minutes afterwards. Regularly shake or stir the mixture to keep the spores in suspension. Once mixed, use the inoculant within the same day, discard any left over. Do not store the mixture overnight for use the following day as the spores lose their viability and will not have any effect on the stumps.

The optimal height to fell the tree is no higher than ankle height. Do not fell at higher than 30 cm above the ground.

Red iron oxide (eg BayFerrox 140M) can be mixed with the oil as a dye to readily distinguish treated stumps. It should be mixed at a rate of 20 g per litre (or 8 g per 400 ml)

Impact on wattle

After black and golden wattle trees have been cut down, unless treated with herbicides or Stumpout®, they will resprout within a few months and form multi-stemmed trees which results in a stand denser than the original one. When applied to the cut stump, the spores are drawn into the stump as it dries after felling. The spores germinate once inside the stump, and the fungus grows downwards, eventually colonizing the whole stump while decomposing it and eventually the stump dies. Mortality of treated stumps is between 80% and 100%. Stumps cut no higher than ankle height usually die within 3 months, but stumps cut approximately 30 cm high may take up to a year to die.

Ordering information

Orders should be placed a month in advance of planned use, with Ms Gwen Samuels at the Plant Protection Research Institute, Private Bag X5017, Stellenbosch, 7599. Phone: (021) 8874690. Fax: (021) 88664679. E-mail: SamuelsG@arc.agric.za