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# A Novel Yeast-Based Biofertiliser

Innovus Technology Transfer (PTY) Ltd is Stellenbosch University's wholly-owned technology transfer company. Contact Anita Nel, Innovus Chief Executive Officer, on (021) 808 3826 or send an email to [ajnel@sun.ac.za](mailto:ajnel@sun.ac.za) for more information.



A yeast strain with the potential to be used as a bio-fertiliser of blue lupin and wheat within a break-crop or crop rotation system to increase growth of both plants.



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## BRIEF DESCRIPTION

The rhizosphere yeast, *Papiliotrema laurentii* CAB 91, can be used as a seed coating agent for blue lupin and wheat, due to this yeast's ability to increase blue lupin germination and wheat vigour. Furthermore, this yeast increases the relative growth rates of both plants during their early growth stage, while enhancing photosynthesis. Thus, by increasing growth of both plants, this yeast may serve as a bio-fertiliser of blue lupin and wheat within a break-crop or crop rotation system.

## UNIQUE CHARACTERISTICS

*Papiliotrema laurentii* CAB 91 has several plant growth promoting characteristics, such as the production of hormones and growth regulators, as well as the solubilisation of phosphate and zinc. In addition, this yeast is the only strain known to date that can improve the germination, growth and photosynthesis of two plants used in break crop and crop rotation systems.

## VALUE PROPOSITION/BENEFITS

*Papiliotrema laurentii* CAB 91 has the potential to be used as a bio-fertiliser of blue lupin and wheat within a break-crop or crop rotation system to increase growth of both plants. In addition, previous research showed that this yeast strain increases the nitrogen fixation efficiency of blue lupin, therefore when blue lupin is treated with this yeast more nitrogen can be returned to the soil for subsequent cultivation of wheat.

## TARGET MARKET

The target market is agricultural based, particularly producers of blue lupin or cereals that are interested in increasing crop growth and yield without using additional fertilizers.

## TECHNICAL DESCRIPTION

Leguminous plants, e.g. blue lupin (*Lupinus angustifolius* L.), are often used in break-crop and crop rotation systems to fix atmospheric di-nitrogen to reduce nitrogen fertiliser input and increase yield during production of cereals, e.g. wheat (*Triticum aestivum* L.). The rhizosphere yeast, *P. laurentii* CAB 91, can influence such systems when it is used as a seed coating agent of blue lupin and wheat, since this yeast can increase blue lupin germination and wheat vigour. Additionally, this yeast promotes higher relative growth rates during the early growth stage of both plants, while enhancing photosynthetic metabolism and water relations. Therefore, this yeast strain might serve as a bio-fertiliser of blue lupin and wheat within a break-crop or crop rotation system.

## PRINCIPAL RESEARCHERS

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## INNOVATION STATUS

A South African patent application (patent application no. 2019/01921) has been filed for this innovation.