

JULY 2022



**Dear Readers,**

In this month's newsletter:

Interim trial results of POPUL8 from a turf farm in NSW

Depth Charge solving seeding headaches in SA

A new Bioreactor for the lab at Neutrog

Bacterial & fungal genome sequencing from the University of Queensland

Our team are actively seeking the collection of soil samples from growers of a wide range of crops and production methods across Australia for our R&D department. If you would be interested in providing a sample, please use the contact links at the base of this email.

Kind Regards,

**The Neutrog Team**



# POPUL8 Turf Trial in NSW

**The team from Ace Ohlsson in Sydney recently shared with Neutrog some of the results from a trial of POPUL8 with Todd and Brent from Buchanan Turf.**

Over the 21/22 summer season, Buchanan Turf used NDVI imagery (a method of measuring plant health based on how a plant reflects light at certain frequencies) to measure the state of plant health, for two blocks, 'Toppos' and 'OB's' which received an application of POPUL8, Neutrog's Advanced Biological Formula.

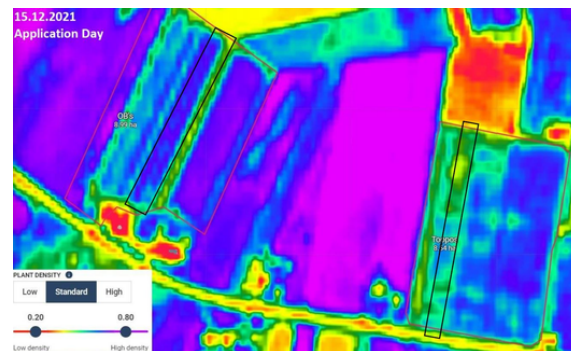
In NDVI imagery, Chlorophyll (a health indicator) strongly absorbs visible light, and the cellular structure of the leaves strongly reflect near-infrared light. When the plant becomes dehydrated, sick, afflicted with disease, etc., the spongy layer deteriorates, and the plant absorbs more of the near-infrared light, rather than reflecting it. Basically, the darker the colours equate to stronger, healthier plants.

Richard Parker, agronomist from Ace Ohlsson explains, "The black rectangle outlines the approximate area where the Popul8 biological was applied in each field. I have been able to collate eight images for these over the summer growing period since the date when POPUL8 was applied. The area in OB's shows a very clear increase in NDVI, Toppos is less so. NDVI isn't definitive, but it is a good guide for identifying where variability exists within paddocks that can then lead you to look further within these areas for possible production constraints; be it soil related, drainage, irrigation, fertiliser, biological responses, disease, etc. On this info it does look favourable for POPUL8 in OB's."

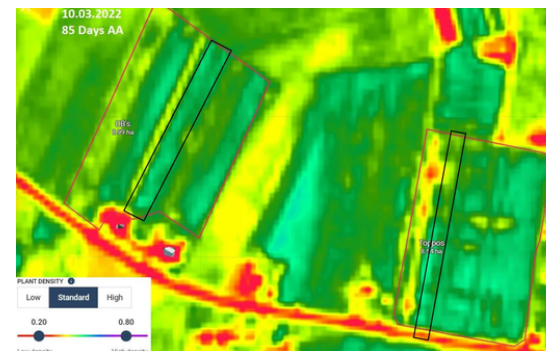
Since that initial feedback, Richard reported that Todd and Brent were keen to look at a second application saying, "Todd is very pleased with results on trial strips – sprayed in December 2021. Increased nutrient uptake is highly apparent with trial strips clearly visible with 'greener', thicker turf. Mowers are having cut treated strips in lower gears compared to untreated strips on account of additional growth and foliage."

POPUL8 is available across the Elders network nationally and will be available in retail stores in spring.

If you would like further information about POPUL8 or how it can support an existing agronomic program, please contact your local Neutrog representative.



**NDVI Imagery on application day of application of POPUL8.**



**NDVI Imagery 85 days after application of POPUL8.**

# Solving Seeding Headaches with Depth Charger

**Coonalpyn farmers the Heinrich family took part in a trial of Depth Charger, a biological product containing microbes shown to actively increase the speed of decomposition of cellulose.**

Within their cropping program, the Heinrich's retain the previous season's stubble for a range of benefits. It acts as a natural means to protect the soil from erosion by both wind and water as well as allowing the retention of carbon within the eco-system. When new crops are sown, the young plants are protected by the stubble from any potential wind damage.

However, the challenge when keeping stubble in place, comes at seeding, when the stubble can lead to frustrating blockages behind the seeder, if the roots and remaining plant have not begun to sufficiently breakdown.

The Heinrich's conducted a comparison trial of Depth Charger in two identical paddocks that were being sown to barley that had wheat stubble from a 3.5t crop from the year previous. Using a Horwood Bagshaw precision seeding bar with knife point tines at 12" spacings, they were interested to see if Depth Charger would stop the inefficiency of repeated blockages.

In photo one, David shows the blockages that they experienced in the paddock where no Depth Charger had been applied.

In photo two, the paddock where Depth Charger was used, there were no blockages from the stubble.

In any situation where a faster rate of cellulose breakdown would be desirable, Depth Charger can be applied.

Depth Charger is a product which contains living bacteria and fungi which have been selected to breakdown material such as stubble, which consists mainly of cellulose and cellulose like material. The selective process in the development of Depth Charger involved growing a range of over 200 microbes in media in which cellulose is the sole carbon (food) source. This, in effect, allows for natural selection of those microbes which are most efficient at breaking down this material. To increase the effectiveness of this breakdown process Depth Charger also contains a specialised agent to allow the microbes to adhere and cover the surface of the stubble, leading to more efficient microbial degradation



**Photo 1 (without Depth Charger)**



**Photo 2 (with Depth Charger)**

# A New Bioreactor for the Lab at Neutrog



**Each of Neutrog's biological liquids begins with a base of beneficial bacteria and fungi and until recently, these bacteria and fungi were grown one litre at a time in conical flasks.**

As we continue to keep up with the demand of our biological liquids, we have commissioned a new piece of equipment for the R&D Lab at Kanmantoo known as a Bioreactor.

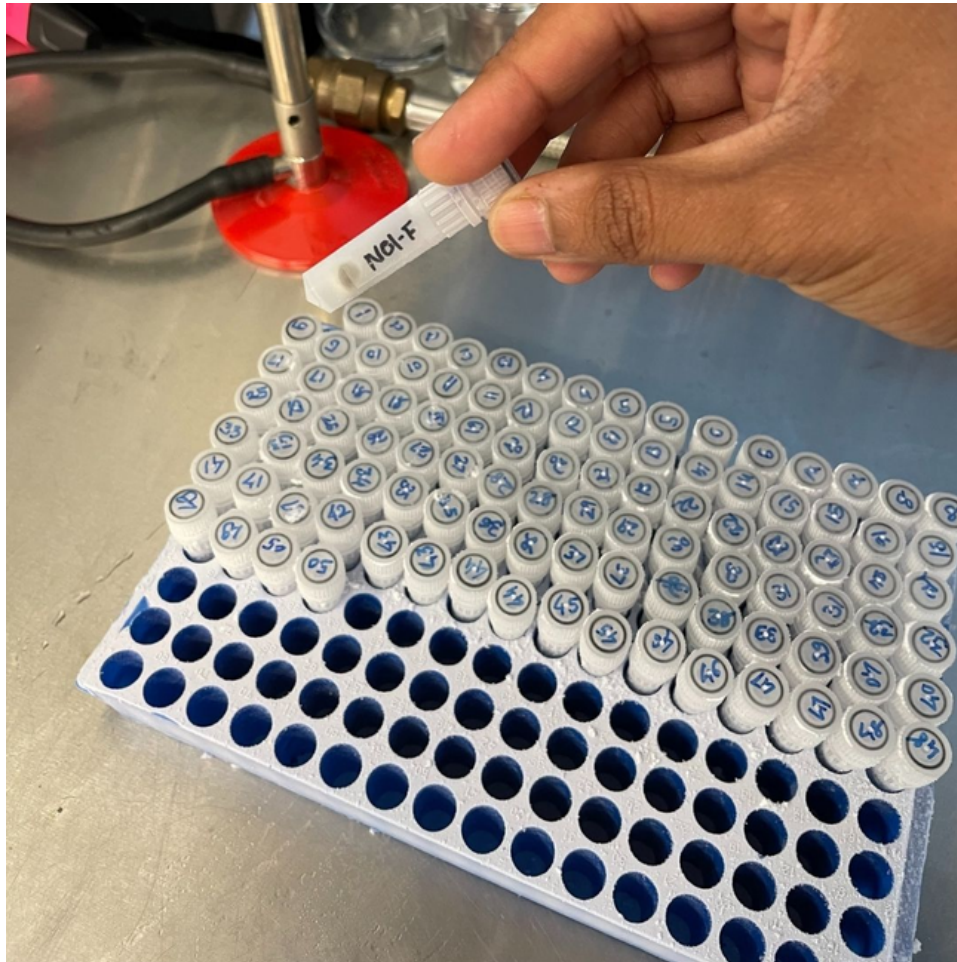
A Bioreactor is a vessel that provides a stable environment for microorganisms to grow. By culturing cells in a Bioreactor, the R&D team will now be able to control variables including the speed at which the growth media is agitated, the amount of oxygen added to the solution, pH and temperature. They will also be able to accurately monitor these elements.

With advanced biological liquids (such as our new product POPUL8), in high demand by both commercial growers and home gardeners, this new Bioreactor will allow our R&D team to keep up with that demand by brewing four times the amount of growth media with a much higher density of bacteria and fungi. The Bioreactor also reduces the amount of time it takes to develop the growth media, from 2-3 days in flasks to 1-2 days in this new piece of equipment.



This exciting addition to the lab coincides with two new, specially made 10,000 litre brewing tanks that will soon be installed into our liquid production area.

# Bacterial & Fungal Genome Sequencing at the University of Queensland



**The isolation and characterisation of bacteria and fungi with beneficial functions has been a core focus for Neutrog's R&D team, having identified a collection of specialised microbes that are already being put to use in biological products such as POPUL8.**

Back in April, selected bacterial and fungal isolates were sent to The Australian Centre for Ecgenomics (ACE) at the University of Queensland for genome sequencing. By obtaining a complete genome sequence for these organisms, we can take a deeper look into the genetic makeup and identify genes that have beneficial functions that we can use in our products.

The genomic sequence of the first 50 bacteria and fungi has now been determined, and the results show that we have some very interesting microbes in our collection. "Some groups of microbes we expected to see such as such as Bacillus, Pseudomonads and the fungi Trichoderma, but others are more of a surprise,' says Neutrog Research Assistant, Juhee Hada.

The next step is to examine the data more closely to look at why some microbes are better at performing certain functions.

These microbes are the first of many to be sent for genome sequencing which will be used now and into the future as we continue to produced the most advanced biological products in the market.

For more information about Neutrog products, please contact our team.

Neutrog products are also suitable for the home garden, and you can find out more by signing up to receive our monthly retail newsletter for stories from gardening experts, product profiles and seasonal fertilising guides for home gardens.

If you would like to receive this newsletter, please email [marketing@neutrog.com.au](mailto:marketing@neutrog.com.au)



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