



# Newsletter

Issue | Spring | 2017

## Windy Station Dryland Cotton

The dry land cotton at Windy Station has handled the exceptionally hot and dry summer and has produced crops that have not been overly affected by the tough weather conditions.

The cotton fields at Windy Station were planted in a single skip configuration with 30L/ha Yarra Flowphos Starter and 50 units of anhydrous ammonia applied pre-plant. 250ml/ha TM was applied several weeks prior plant a 2kg/ha TM Foliar was applied in crop along with a second 250ml/ha TM.

Considering the low rainfall received throughout the cotton season and the record high day and night temperatures that reached 48 degrees, the average yield of the cotton was 3.4 bales/ha and the turnouts were the highest ever at 46%.

A representative from Namoi Cotton recently commented to Peter Winton, Windy Station Farming Manager, that a lot more cotton seed has been produced from the Windy Station crop this year and that the colour grades of the fibre are also good. Peter Winton has been using TM with every crop grown on Windy Station since 2010 and as a result the soil at Windy is biologically active which is why such robust, healthy cotton crops can be grown with minimal fertiliser and the plants are able to handle the stress conditions such as excessive heat and lack of rain while still producing good yields with high grades.



BEST Australia launched its new look website in September.

The fresh website provides some of the latest information from around Australia and the World.

At BEST we plan to constantly keep our website at the cutting edge and support our clients and the wider community with latest news and developments.

[www.bestenvirotech.com.au](http://www.bestenvirotech.com.au)

Contact your local distributor for information on Best's products:

- TM Agricultural Biostimulant
- TM Seed Germination
- TM Foliar Fertiliser
- TM Lawn & Garden

High quality supplements can play an important role in augmenting the feed requirements of stock during pinch periods including times of drought and cold winter months when pasture growth is reduced. There is also a growing reliance on supplements to support higher milk production and boost live-weight gains. This is because the animal is often presented with low energy, nutrient deficient pastures. The production of high quality pasture silage is however commonly compromised by poor soil structure.



PLATE 1. Grass silage

High quality pasture silage can only be made from high quality pasture. It is impossible to produce high quality silage from low quality pasture no matter how good the fermentation process is. A high quality pasture can only come from an aerated bio-active soil with a good nutrient and water content and a good rooting depth. Poor soil structure will compromise all of these requirements.

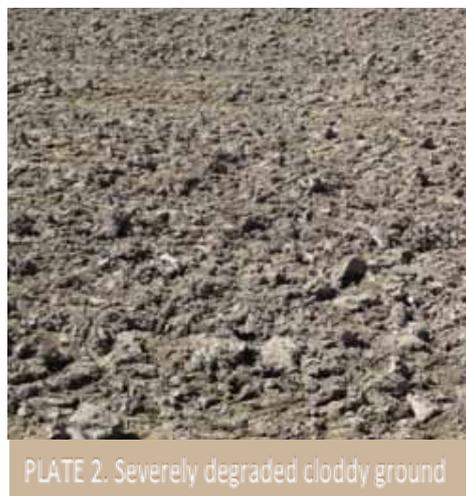


PLATE 2. Severely degraded cloddy ground

Because the field in PLATE 2 was highly degraded having lost a significant

amount of soil carbon and was severely compacted, the recommendation was made to cultivate the ground, apply TM at a rate of 500 mls/ha after the last cultivation and re-sow in pasture incorporating a good proportion of white and red clover. The previous 5 years of continuous maize (for grain) had created a 'Sunday Soil' - too wet on Saturday and too dry on Monday to cultivate. Because the ground was so severely degraded with large, tight compact clods, the soil was difficult to cultivate to a seedbed.



TM was applied at the end of October 2016 to activate the microbes in the soil to soften and break down the clods, improve the structure and soil aeration, and make it more possible to cultivate. The untreated soil was a tight, compact, pale grey structureless mass on the 26th Oct. 2017 (PLATE 3) but after treatment with TM on the 31st Oct., the soil had become noticeably darker and better aerated with good structure as observed on the 30th Jan. 2017 when the site was revisited just three months later. This was frankly a remarkable turn-around on a soil that had been so degraded.

The restoration of soil structure in such a short space of time is very significant. From the work I did in a crown research institute, the recovery of structure without the activation of soil micro-organisms in highly degraded fine silty and clayey cropped soils can take decades on their return to a pasture. From a farm management and advisory point of view, it is useful to have a product such as TM that can not only restore soil structure but do it in such a short space of time. From the modelling work we did, such a short recovery time was something we didn't think was possible a decade ago.

In addition to helping to create an environment favourable to soil

biological life, the restoration of soil structure is important because it regulates soil aeration and gas exchange rates of oxygen, air and other gases into and through the soil. It regulates soil temperature, root penetration and growth and the development of a good rhizosphere. It regulates nutrient supply and the resistance to structural degradation by compaction and deformation under wheel traffic and stock treading. Good soil structure improves the trafficability of the soil, increasing the window of opportunity for stock grazing and vehicle access without causing compaction. The loss of soil structure can alter seasonal growth patterns and change the botanical composition of pasture including an increase in the number of weeds. Structural degradation can reduce tiller density and canopy cover by 50%, pasture production by 30-50% in spring, and is often a catalyst for diseases. It also reduces the infiltration and conductivity of water into and through the soil reducing the storage of water and therefore increasing the susceptibility to drought. Reduced infiltration and conductivity of water further increases the potential for erosion by sheet wash on sloping ground. In addition, the loss of soil structure increases the potential for ponding and anaerobic conditions, suppressing the supply of oxygen to plant roots and the uptake and utilisation of nutrients such as N, P, K, Ca, Mg, Na, S, Fe, Mn, Zn, Cu, B, Mo and Co. The pasture for silage option was chosen because it provided a forage supplement throughout the year and it provided a green leaf cover that was able to drawdown the CO<sub>2</sub> in the atmosphere to build up the depleted soil carbon through photosynthesis and the activity of soil microbes. It also provided a better option for improving the soil structure through the benefits of a greater root length density per square metre and the development of a healthier rhizosphere. The site has now had three cuts producing 250 (700-850 kg) bales of grass silage off 22 ha. 1150 bales of grass silage have been produced on-farm this year ensuring the provision of a high energy supplementary feed for the year without the need to buy any in, representing a significant cost saving to the farmer.

Graham Shepherd - BioAgriNomics

# Gregory Wheat - Split Paddock Trial - Parkes NSW

Half paddock received one application of TM Ag at 250ml/ha prior to sowing

A recent crop check with Best Australia distributor Dave Brown revealed the following.

Maurice said there had been a slight crop line affect from where they had used the TM. The crop on the TM side was slightly darker and taller and recent crop check with Best Australia distributor Dave Brown revealed the following.

The difference between the treated and untreated was impressive (note: with only one application of

TM). The season is drying out fast and the shovel was much easier to push into the treated side. All agreed that the soil softness and root development differences were obvious. The treated side was more friable, moist and would clump in your hands when rolled. Hopefully it will rain soon, but if it doesn't the resilience to drought through improved soil structure should help the TM side finish better. It is worth noting the TM side had a refractometer leaf brix reading of 16 VS 12 on the untreated side, indicating a higher mineral density and greater tolerance to frost.

They plan to yield map at harvest.



## Crop Check Report TM Chickpeas Avondale, Rowena NSW

After recent examination of the chickpeas at Avondale with manager Bernie Bierhoff, it confirmed Bernie's comment that he has never seen as many nodules in the chickpeas as there are this year.

The Avondale Hatrick chickpeas were planted and watered up with irrigation mid- May with 80kg/ha of DAP. The first TM application was applied pre-plant with a fallow knock down spray and the second TM application was applied in-crop with the selective herbicide application.

The chickpeas received a second irrigation at the end of August. When walking into the crops they are knee height and loaded with pods.

When digging up the chickpea plants in Field 23, which has had TM applied to it for the past three years, the nodules were in huge clusters all over

the dense root system of the chickpea plants. This is a great indication that the biological ecology of the soil is healthy, creating the aerobic environment necessary for both the formation and the atmospheric nitrogen fixing function of nodules. These can only be produced in response to an invasion of Rhizobium, a microbial bacterium through the dense root hairs of the chickpea plants which infect and stimulates the proliferation of root cells to form nodules.

When splitting open the chickpea nodules, the presence of the red coloured leghaemoglobin indicates the nodule is actively fixing Nitrogen, the darker red the colour the more active it is. Leghaemoglobin can only be produced if levels of Iron, Manganese, Zinc and Copper are adequate, another indication that the

micro biology is doing its critical job of supplying essential nutrients to the chickpea plant to enable this process to occur. This once again shows how crucial it is to trigger the native soil biology with TM before and during a crop's growing season.

Bernie commented that Avondale would not have had the chickpea results that they achieved last year without TM. In 2016 the TM treated chickpeas yielded an average of 1.85t/ha and despite excessively high rain falls throughout the growing season around 100mls in the winter months followed by 200mls in September and early October, the soil in the chickpea paddocks drained well and Avondale lost only a small percentage of their chickpea crop in the deluges.



Chickpea crop in field 23 loaded up with pods



Masses of nodules all over the chickpea roots



Dark red leghaemoglobin in the chickpea nodules



## Quality Pasture Production



Doug Medland owns a small property to the north of Woolooga, Queensland. The area is served with moderate rainfall, averaging around 600mm.

The property has been steadily prepared to host several horses. In the interim, a number of young cattle are agisted to provide cash flow and control pasture growth. Doug's conundrum was what to do about nutrition. The property scale did not justify major expenditure on spreading equipment and he was also keen to avoid inorganic additions if possible.

After consideration, Doug chose to run with 2 x 250ml applications of TM annually. An inexpensive spray rig, based on a 12v pump and a single pasture jet nozzle mounted on the back of a ute provides the application. Results on the pasture were noticeable within 6 months of the first application, with the pasture density improving and quality being extended through testing weather variations. It is noticeable that a strong mix of pasture species has now taken hold.

Doug was impressed enough to take the time and apply TM to the house yard. The difference is startling, impressing Doug's wife immensely and lifting the sense of wellbeing on the property. A thick swathe of grass now covers areas which had previously refused to sustain growth.

The cattle being grazed on the property maintain excellent growth and health.



# Best



ENVIRONMENTAL  
TECHNOLOGIES



For more information  
call Best on 1 800 455 237  
or visit  
[www.bestenvirotech.com.au](http://www.bestenvirotech.com.au)

Best Environmental  
Technologies Australia Pty Ltd  
ABN: 51 121 414 917

18 Copford Rd  
Goulburn NSW 2580

Phone: 02 4822 5536  
Fax: 02 4822 5537  
Toll Free: 1 800 455 237



**BEST Environmental Technologies has distributors placed all over Australia.**

**Please contact us for you nearest distributor on (02) 4822 5536 or visit our website**

Disclaimer: Every care has been taken in compiling this information to ensure accuracy of the observations supplied by the farmer to Best Environmental Technologies P/L and Media outlets. These observations are independent of Best Environmental Technologies P/L, no responsibility is accepted by Best for any errors or misdescription.

# [www.bestenvirotech.com.au](http://www.bestenvirotech.com.au)