

**Our Mission**

We believe that soil is the most important frontier of our generation.

Our mission is to bring generational prosperity to farms through soil regeneration.

Product benefits series:

# Compost Summary

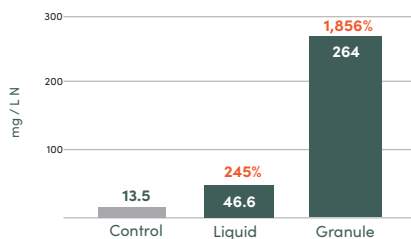
## 1. MAKE NUTRIENTS PLANT AVAILABLE

The Bacteria in Bactivate convert nutrients to make them plant available. That's how nature works. Without bacteria (and fungi) we would all cease to exist. So would compost!

In a compost manufacturers study over 12 weeks the addition of the Bactivate product and program as a liquid or granule product produced a **245% to 1,856%** increase in ammonium nitrogen availability in the compost versus a control with the same processes.

This is because the bacteria in Bactivate had already got to work converting nutrients (particularly bound up phosphorus) into the plant available format of ammonium nitrogen so the impact on plant yield can be felt immediately on farm application.

**Ammonium Nitrogen Levels in Compost**



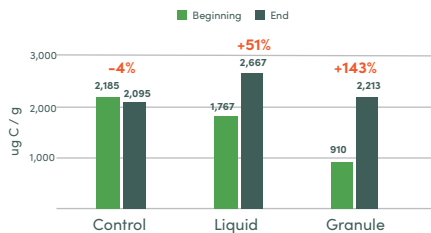
## 2. IMPROVED TOTAL BIOLOGY COUNT

Measured with a Microbiometer the liquid and granule products not only increased healthy

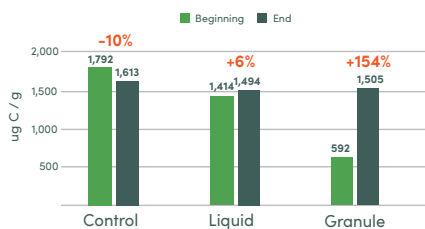
bacteria counts, they also **increased total biology counts 43% to 51%**, with the control dropping 4% over the 12 week program.

Importantly, Saprophytic Fungi that help compost organic material increased 6% and 154% respectively in the liquid and granule treated compost, versus the control which declined 10% over the full period. Saprophytic Fungi can feed on the various bacteria in Bactivate so that is the reason for the Saprophytic Fungi increase so significantly in the Bactivate piles.

**Increase in Total Biology in Compost**



**Saprophytic Fungi**



## 3. REDUCE HEAVY METALS AND CHEMICALS

The bacteria in Bactivate are known to reduce heavy metals and any pesticide /

chemical residues as the bacteria essentially consume them as a source of carbon, break them down and reduce them to harmless elements.

The bio-remediation abilities of the bacteria in Bactivate is the key reason why an engineer (Mark Gabsch), who is the owner of Bactivate, got involved in the first place (albeit he was looking at application in a broiler chicken model).

**Reduction in Heavy Metals in Compost Bactivate Piles vs Control.**

	Liquid	Granule
Copper	-12%	-4%
Boron	-38%	-17%
Aluminum	-43%	-37%
Cobalt	-23%	-21%
Lead	-13%	-19%
Arsenic	-14%	+1%
Chromium	-16%	-18%
Mercury	-55%	-55%

Whilst a small trace of Dieldrin (a pesticide banned in 1987 in Australia), was found in the control product no pesticides were found in the Bactivate treated product.

PTO

Distributor:

m. 0481172565  
e. shaune@bactivate.com.au  
w. bactivate.com.au

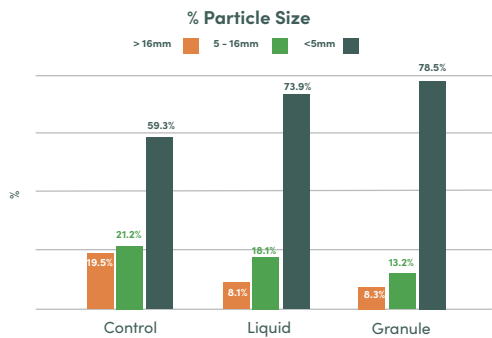
## 4. REDUCE TIME TO MATURITY

To make the grade as a soil conditioner, the compost should have particle sizes greater than 16mm at less than 20%.

Whilst the control sample just made the grade at 19.5% less than 16mm, the Bactivate liquid and granule treatments had just **8.5% and 8.3%** of total particles greater than 16mm.

In addition the liquid and granule treated products both had **25% more smaller particle sizes (<5mm)**. This compost then visually presents as a finer compost, more 'readily available', and 'more like soil', **leading to a perception of higher quality.**

The repeated nature of the result tends to support the quicker break down of organic material in the Bactivate treated compost. This can lead to quicker production, improved margins and allow compost companies to build capacity.



## 5. OTHER KEY MEASURES (AORA)

Across the board Bactivate performed better than the control, except in the case of some nutrients like Phosphorus, which is what the bacteria uses as a principal source of nutrients to make ammonium nitrogen. **Root elongation in the plant growth test in the liquid was 2 X that of the control, showing immediate impact.** Because of the combination of price and impact Bactivate 5 liquid is the most commercially sensible product to use on a compost.

Particle size (<20% + 16mm)

End pH > 5 to 8 EAL  
End pH > 5 to 8 (Customer Test)

Electrical conductivity (dD/M)  
Ideal target 2 to 4

Moisture content (30-40%)

Primary nutrients  
Phosphorus (mg/kg P)  
Potassium (%)  
Calcium (%)  
Magnesium (%)

Solvita Test  
7 Jul  
21 Jul  
24 Aug

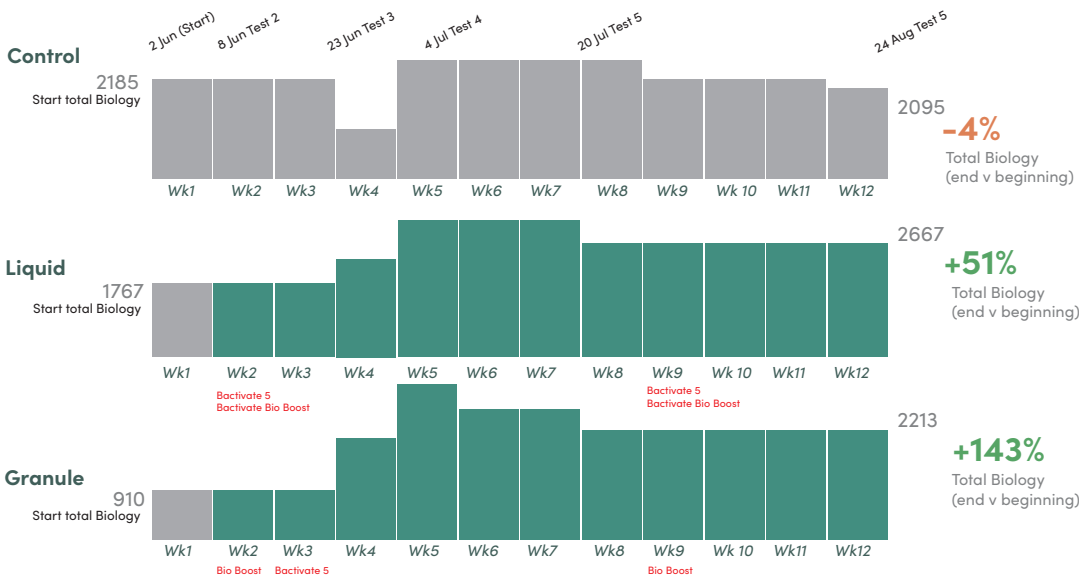
Nitrogen Draw Down  
> 0.5 = Stable

Contaminants  
Light flexible film >5mm <0.05  
Glass, metal, rigid plastics > 2mm <0.5  
Clay, Stony lumps > 5mm < 5.0

Plant growth test  
Root elongation >60

	Control	Bactivate 5 Liquid	Bactivate 5 Granule
Particle size (<20% + 16mm)	19.5%	8.5%	8.3%
End pH > 5 to 8 EAL	7.7	8.0	8.1
End pH > 5 to 8 (Customer Test)	8.1	8.2	7.9
Electrical conductivity (dD/M)	7.5*	5.1	8.2*
Moisture content (30-40%)	47%	40%	37%
Primary nutrients			
Phosphorus (mg/kg P)	115	60	71
Potassium (%)	1.19	1.34	1.08
Calcium (%)	3.94	7.21	10.6
Magnesium (%)	0.83	0.83	0.54
Solvita Test			
7 Jul	Comp	Comp	Active
21 Jul	Active	Active	Active
24 Aug	Comp	Comp	Comp
Nitrogen Draw Down	0.47	0.83	1
Contaminants			
Light flexible film >5mm <0.05	0.22	2.09	<0.01
Glass, metal, rigid plastics > 2mm <0.5	0.71	0.66	0.10
Clay, Stony lumps > 5mm < 5.0	6.58	5.96	4.21
Plant growth test			
Root elongation >60	27mm	55mm	15mm

\*Can indicate higher nutrients as nutrients in compost record as salts. Conversely nutrient levels in Bactivate Liquid have already converted into plant available Ammonium Nitrogen.



## METHODOLOGY

3 Compost piles made from the same base materials side by side. The control had all the same processes as all other piles. The 'liquid' pile was treated with Bactivate 5 and Bactivate Bioboost at week one and 9, where as the 'granule' pile was treated with Bactivate Bioboost, Bactivate 5 Granule and again with the Bioboost at weeks 1, 3 and 9 respectively.

### APPLICATION ADVICE:

- 1L Bactivate 5.
- 2.5 Bactivate Bioboost Enhance.
- 2.5 Bactivate Seaweed.

Mix in 100-150L of water per XXX.  
Add XXXXX  
XXXXXX

**BACTIVATE**<sup>®</sup>  
Complete soil bacteria program.





## COMMERCIAL BENEFITS:

Adding Bactivate products to compost gives us an accelerated view of what the Bactivate range does in soil. Bactivate makes nutrients plant available by converting nutrients to ammonium nitrogen, protects crops and pasture through a symbiotic relationship and mitigates or reduces heavy metals and chemicals in the soil. The composting process just speeds up the entire process up and highlights the large benefits of incorporating Bactivate to improve soil microbiome. We see 4 ways Bactivate can help when combined with the compost.

### 1. For the manufacturer

- i. Faster composting.
  - Improved capacity, revenue & margins.
- ii. Superior product creating faster visual impact on any farm crops or pastures.
  - More ammonium nitrogen
  - Root elongation
- iii. Less risk of bio-accumulation on farm.
  - Pesticides & heavy metals.
  - Reduced litigation risk.

### 2. For the agronomist / sales team

- i. Superior / easier sales story.
  - Hard data on better biology levels.
  - Hard data on improved ammonium nitrogen.
  - Significantly better plant availability.
  - Reduce risk of bio-accumulation.
  - Finer compost for better soil assimilation.
- ii. Strong differentiation.
  - Powered by Bactivate.
  - Organic certification.

### 3. For the farmer

- i. Confidence in product with clear rational reason for paying a premium.
- ii. Emotive connection - first to start talking to me about heavy metals / chemical risk so I will reward you with my future business.
- iii. Clear rational reasons to stay with your business and barriers to swapping to others.
- iv. Strong reasons to believe in superiority of product, which is presented visually (smaller particle size) and output wise (faster growth and yield compared with previous composts).

### 4. For all

- i. Less fertiliser use & less run off.
- ii. Improved soil biology in all soil.
- iii. Better water holding capacity of soil.
- iii. Longer seasons and better produce with higher yields to improve farmer return.

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