

## GUANO INDEPENDENT RESEARCH DATA

Soil Management Systems specialises in soil and plant nutrition, providing all your soil and plant nutrition needs Australia wide. SMS Guano has proven to be a superior soil friendly alternative to the traditional phosphorus fertilisers, MAP/DAP/TSP/SSP.

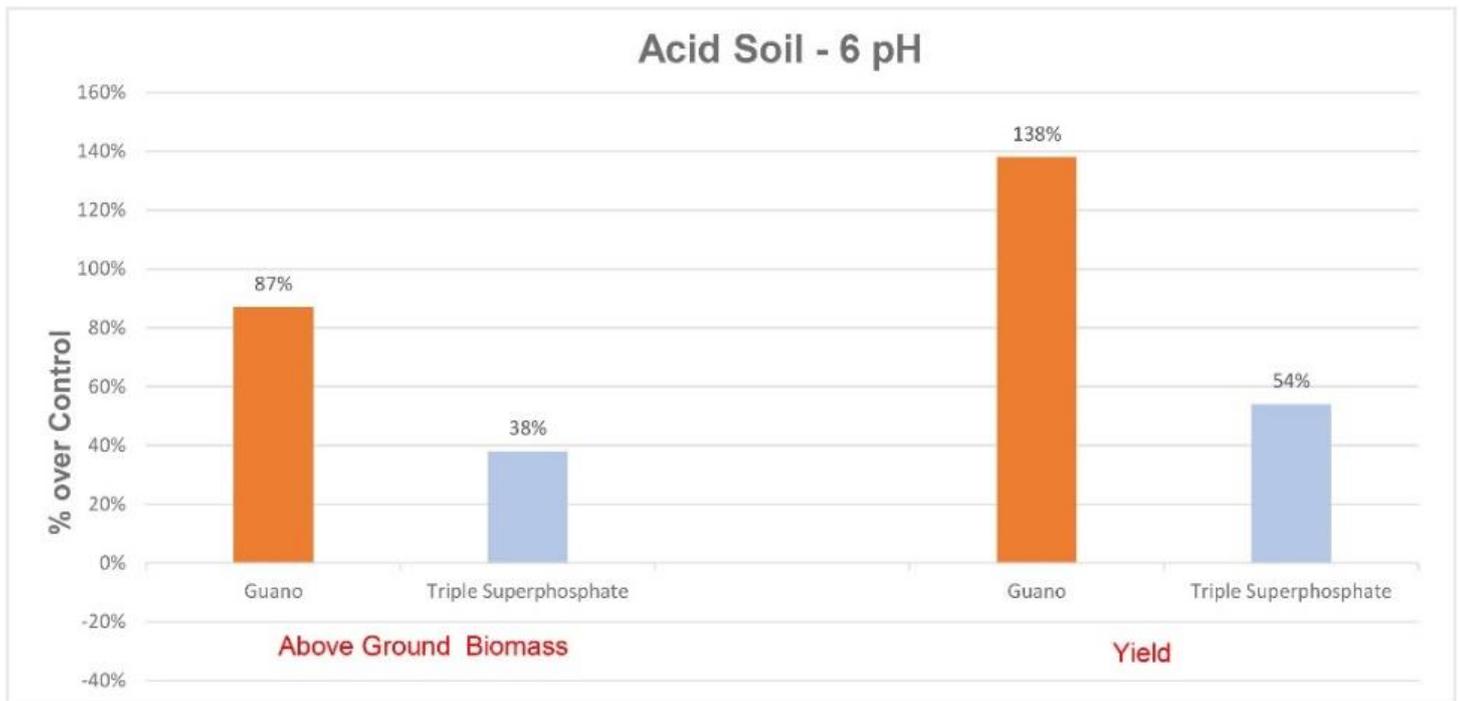
### SMS Guano Fertiliser – Research shows superior performance

Known as the “Most Mineral Rich Fertiliser known to man” SMS Guano is proving to be a superior alternative to the traditional MAP/DAP & SSP fertilisers.

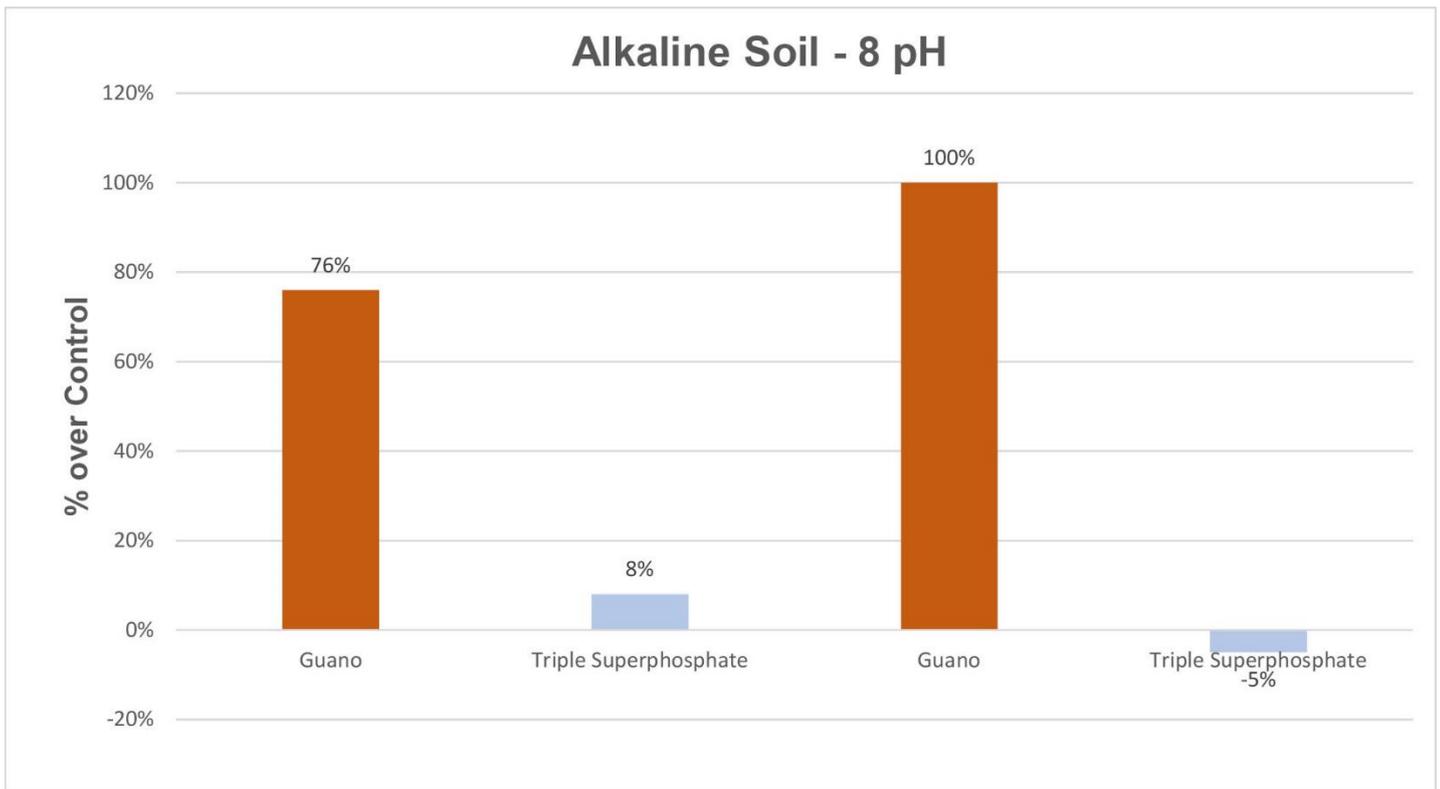
With high levels of a balance of Phosphorus plus Trace Minerals SMS Guano is supplying more than just a couple of nutrients. An example of the benefits of a balance of Nutrients is Zinc. Pre-1980, the SSP available then had approximately 0.15% Zinc which with regular applications supplied adequate Zinc for crops and pastures, but with the advent of high analysis fertilisers Zinc deficiency became wide spread in a short time.

Although it has always been understood that Guano is a very valuable fertiliser giving excellent results in all soil types, little research and trial data in Australia has been available. We at Soil Management Systems with a soil science background are particular in backing up our information with independent research data.

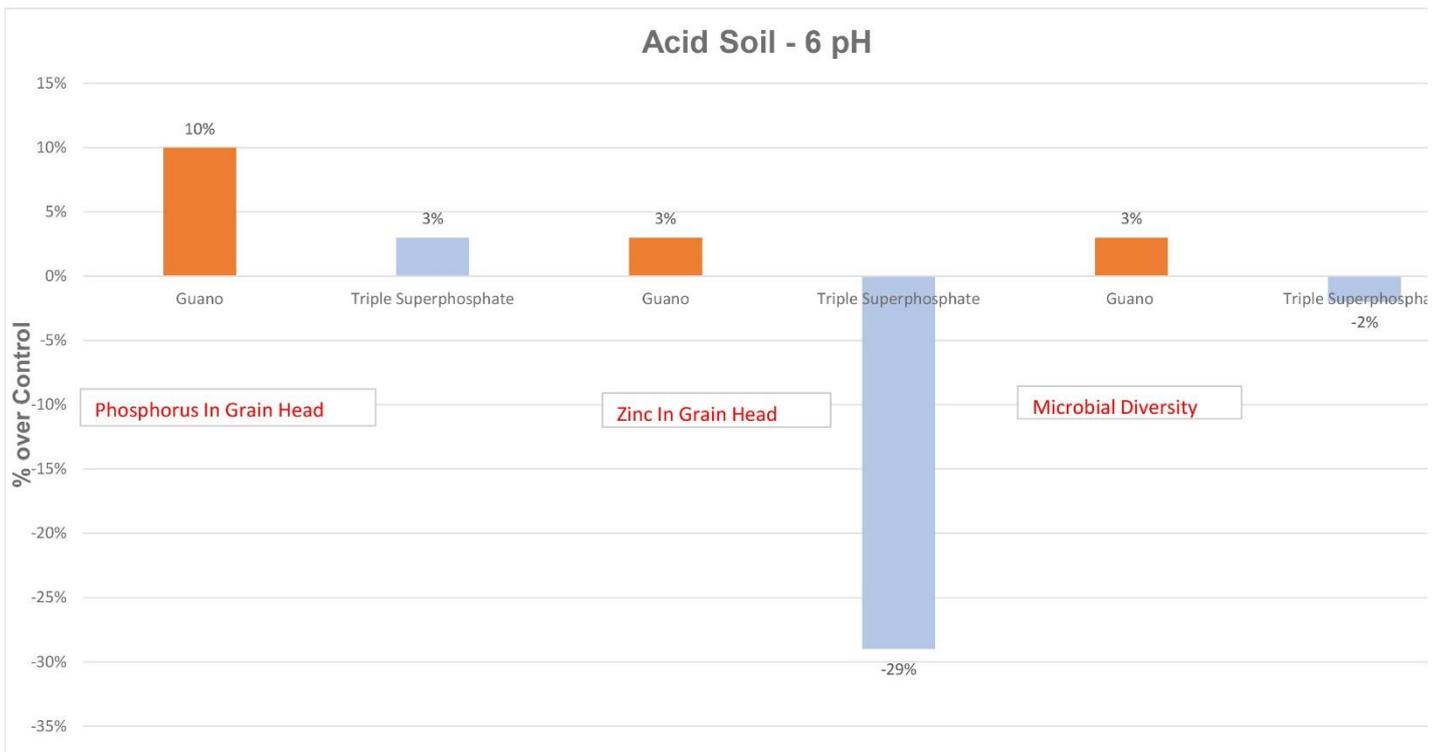
Dr. Ashley Martin, ex CSIRO and Maria Manjarrez ex University of Adelaide, now of Microbiology Laboratories Australia was engaged by SMS to conduct trials and produce data on SMS Guano in both Acid and Alkaline Soils. SMS has made a considerable investment in these independent trials and will continue to do so.



These results were replicated and show the Biomass and Yield increase of SMS Guano and Triple Superphosphate compared to no fertiliser in slightly acid soil.

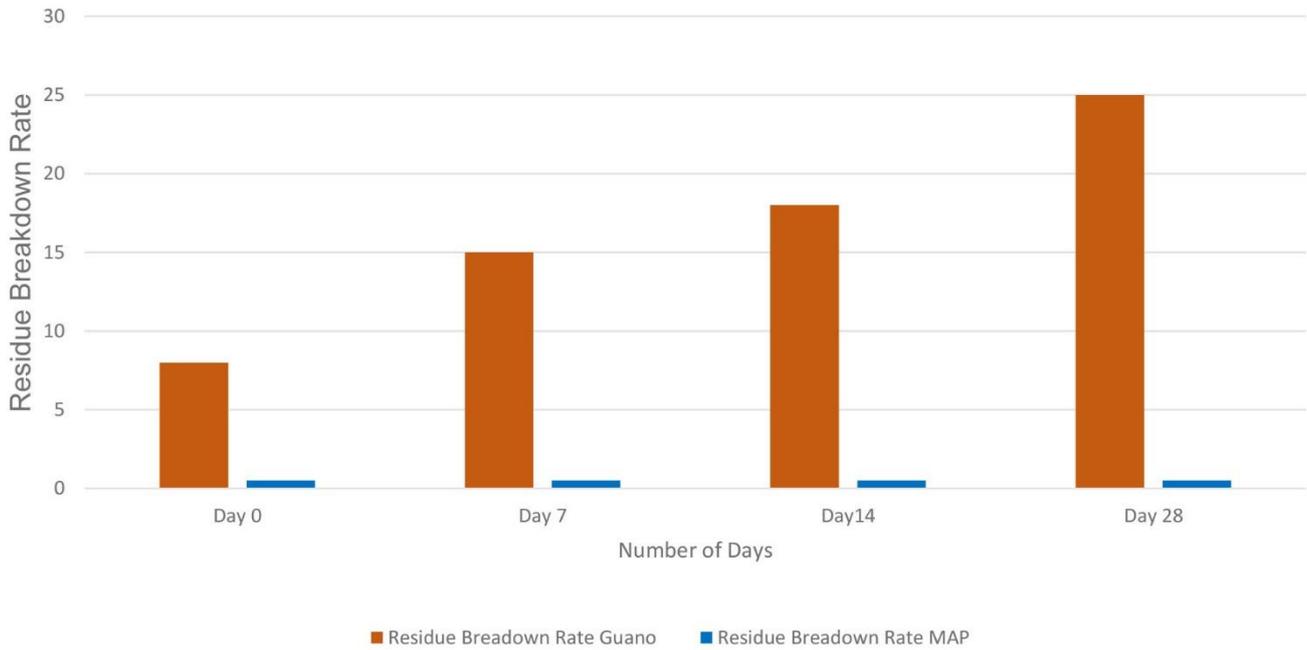


The results in alkaline soils shows the superior performance of SMS Guano where the Phosphorus is readily available and not subject to being locked up as with the water-soluble phosphorus in traditional fertilisers.



A much greater fertiliser use efficiency is shown here in the increase in Phosphorus and Zinc uptake with SMS Guano compared to the traditional fertiliser. The results were the same in both acid and alkaline soils.

## Residue Breakdown Rate Guano and MAP

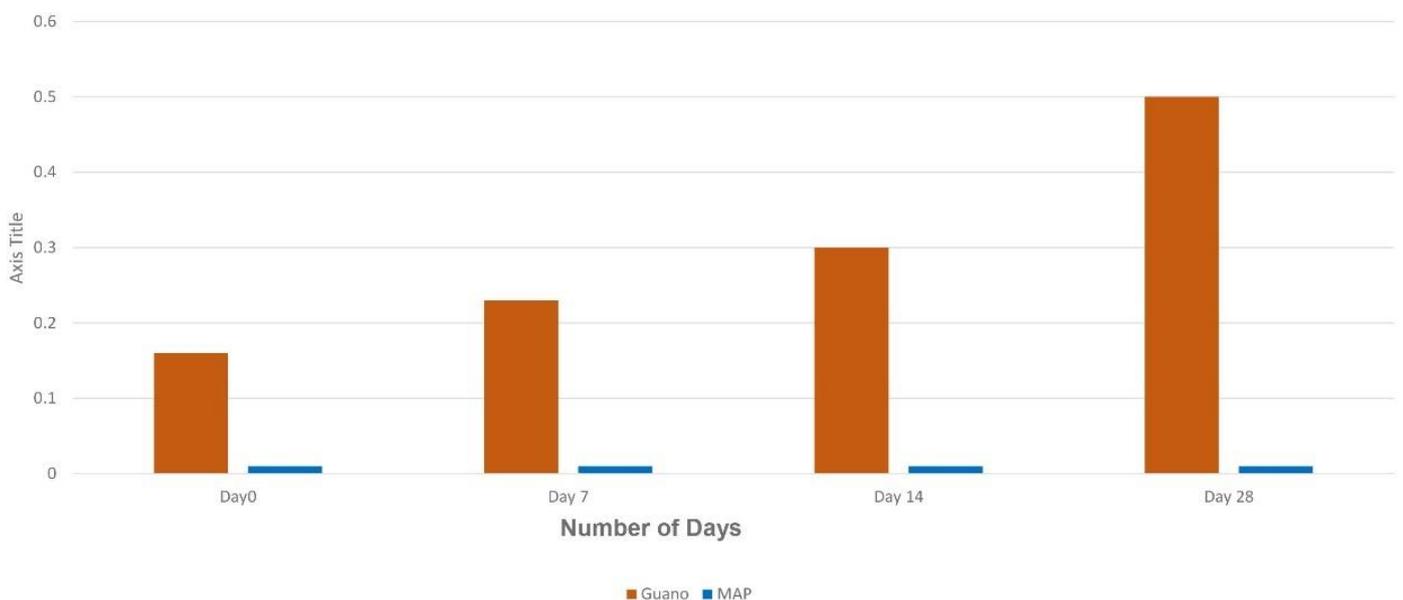


This chart shows the rapid breakdown of the Guano granule by Biological activity and thus nutrient availability from the granule. Biology is instantly very attracted to the Guano granule.

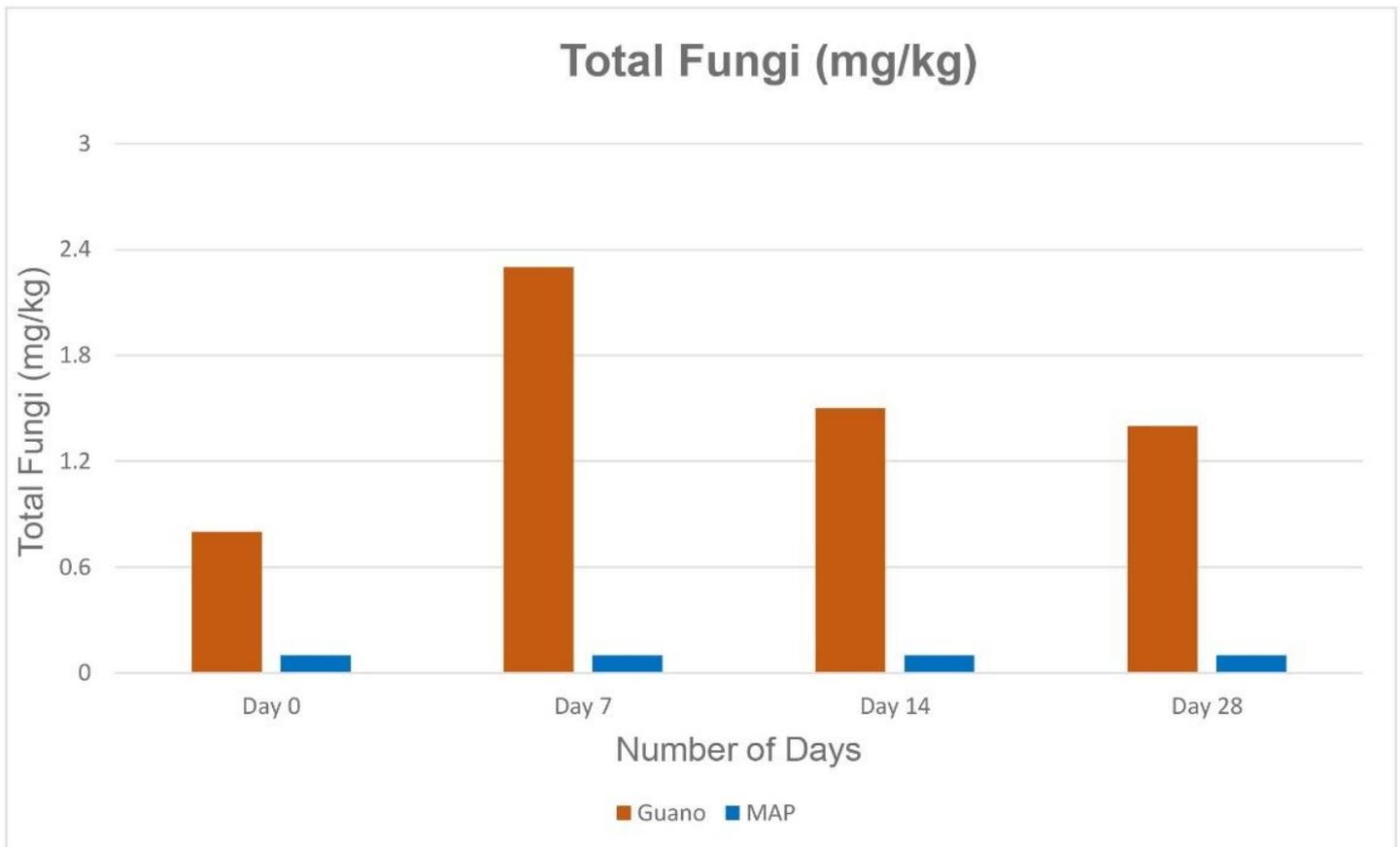
Showing the rapid response from all groups of microorganisms to the Guano granule.

The preferred primary nutrient uptake by plants is through a symbiotic relationship with these microorganisms. As can be seen microbes and fungi are not attracted to traditional fertilisers.

## Actinomycetes (mg/kg)



Commonly referred to as Actino Bacteria, this group attach and form long chains similar to Fungi. This group are important for the mechanism of nutrient uptake in the soil for plants.



Various species of Fungi act as an extension to the root systems drawing nutrients from an extended area to feed back to the plant. SMS Guano encourages these Fungi as shown. Generally, Fungi are virtually non-existent with traditional fertilisers.

Currently SMS have more research underway and we will share these when available in the new year. Overall the results above are being confirmed in the field across Australia. **STOCKS ARE AVAILIABLE FOR ALL STATES.**