

### **Heat activated, Slow Release Fertilizers.**

*Heat activated Slow Release fertilizer (herein referred to as SRF) has, since 2007, been part of the cultural processes of several members of our club. I, along with many others, have experienced some problems with root damage.*

*I can remember some of us blaming root loss on the use of coconut chunks in our potting materials.*

*After my move to Oakey at the end of 2009, I found that quite a number of the plants that I took with me had serious loss of roots. On checking my pots, I noticed that the SRF granules that I had used in the pots were still visible and at the time I ruled this out the cause to be the SRF.*

*The only thing that was different to previous years potting (other than the use of SRF) was the use of coconut husks in my mix, so naturally I blamed the loss of roots on this medium.*

*I did not include SRF in my mix thereafter as I had run out of the product that I had purchased.*

*Upon my return to Bundaberg November 2015, I purchased more SRF from the club and repotted some 300 orchid seedlings and advanced seedlings into 80 and 110 mm pots using my mix that I had used during the past five years.*

*Once again in March 2016, I noticed that my plants, potted in November and December, were starting to go backwards and some had died. On checking the pots I found that the roots had again died. It was then that I checked the SRF granules, squashing them in my fingers only to find that the shells were empty and devoid of any fertilizer. I brought the matter up with some members of the club who assured me that the fertilizer was not a problem. I stewed on this for some time but continued to lose plants; about 270 by August of last year. All other plants within my orchid house that were not treated with SRF were growing exceptionally well.*

*August/September last year I started to make enquiries from the Australian distributor. I was looking for an MSDS sheet but there was none available on their*



<b>Longevity</b>	<b>9-10 months</b>	<b>8-9 mths</b>	<b>6-7 mths.</b>	<b>5-6 mths</b>
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Applying the above temperature and longevity figures it could be assumed that the following would be appropriate for higher temperatures that we experience.

<b>Substrate Temp.</b>	<b>34 -35C</b>	<b>38 -39C</b>	<b>42-43 C</b>	<b>46 -47C</b>
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<b>Longevity</b>	<b>4-5 mths.</b>	<b>3-4 mths.</b>	<b>2-3 mths.</b>	<b>1-2 mths. Assumptions only</b>
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**My findings** September 2016 through January 2017 to date.

<b>Pot Temperatures</b>	<b>Ambient Air Temperature Bundaberg Airport records</b>				
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October	Min 22C	Max. 43C	Air Temp	Min 19.2C	Max 30.1C
November	Min. 26C	Max. 48C	Air Temp.	Min 23.7	Max 37.1C
December	Min. 27.C	Max 46C	Air Temp.	Min 23.5	Max 34.7C
January	Min. 28C	Max 49C	Air Temp	Min 26 C	Max 33.7C

(higher pot temperature January may be attributed to greater number of clear days.)

**Note** *Pot temperatures have been taken in a pot which is in a semi shaded position (plants above) within the orchid house. The pot received normal watering conditions that all my plants experience.*

With maximum substrate temperatures being well above the maximum recommended product safety limits, it then can be considered that use of this product, would not be appropriate in the cultivation of orchids.

Bearing in mind that orchid roots take up almost 80% of their ability to hold water within the Velamen radicum in the first 15 seconds of the watering flush ( Zotz and Winkler Institute of Biology and Environmental Sciences, University of Oldenberg Germany <https://www.uni-oldenberg.de/en/biology/functional-ecology/projects/velamen/> ) one can assume the concentrated salts of the nitrogen and other fertilizer would be taken up in the initial influx of the irrigation of the plant. This of course would lead to the destruction of the root system of the orchid.

Heat activated Slow Release Fertilizer under the above condition would not at all be successful in the cultivation of Orchids under the growing conditions that I have and indeed most other growers within our club and elsewhere, where the temperature of the pot exceeds 27° Celsius.

I note that some of our members do have success with this product, those members who have orchid houses with a roof clearance of over 4 meters above the plants and some whose orchid house experiences shade from trees and buildings during the day. Therefore, reducing the temperature within the pot.

It is noted that one member who has success with the SRF used this on orchids which were within a meter of the roof of their orchid house did experience severe root loss within months of applying to these orchids, again confirming my thoughts on this matter.

Please Note I have not mentioned the producers name on purpose as I do not want to throw any doubts upon the product which I believe is successful in other areas of cultivation and a great product for its designed purpose, but, unfortunately the product is not suited, under most growing conditions of the amateur orchid grower.

Note on the China matter I believe that the product would be used in climate controlled orchid houses and would perhaps be most beneficial under these conditions.

I have also been advised by a considered expert that perhaps a Slow Release Fertilizer based on time release would be more suited to our needs. I will be following up with this as the person concerned assures me that the design of this product is now more stable than it was in the past.

Reg Dix.