

# Doing something constructive about **unpredictable rain...**



We can't control the weather (well at least not yet), however we can do something about increasing water use efficiency when it does rain.

Lets say you have a non-wetting light sandy soil. Not only does it repel water, but it also won't hold it. Not retaining moisture is possibly a bigger problem than not letting it in, often resulting in loss of fertiliser, inconsistent plant development and loss of yield potential.

So is there a magic fix for this?.. Not really, but there are solutions that help.

*We could now talk about soil wetters, claying and various forms of tillage, however let's zone in on an aspect of water use which frequently gets overlooked... Roots.*

So you have applied a soil wetter, remediated the soil or waited for enough rain to penetrate down to the seed.

Then it stops raining, water dries up or drains away. I often get asked if having a bigger root system on a plant translates to higher yield (or just wasted energy). Well in a dry season bigger, longer roots access more water for longer. Dig up a summer weed if you're not sure about that. In fact while you're looking at summer weeds pull one out in a particularly light bit of country and see what happens to the soil between the roots – it tends to be quite dark. This is humus being produced as a result of plant – microbe interaction ... more on that later!

If you want to capture more moisture, and bridge the gap between rains more reliably, grow a plant with a bigger root system. If you find your soil carbon increases as a result of this consider it a bonus and incentive to continue investing in your soil health.

How do you grow a plant with bigger roots, and how do you make it happen quickly enough to matter?



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Compoundd Nitrate and Phosphate  
controlled release fertilizer

## Use less water soluble fertiliser

This goes against the grain, but consider the following:

- Most growers appear to have high Colwell P levels in relation to their soil PBI. This means excess Phosphorus is present. Excess Phosphorus does not translate into higher yields, but does limit beneficial microbiology such as VAM which also stimulates root growth. Much like over applying Nitrogen decreases the need for legumes to nodulate.
- Using less water soluble fertilisers can stimulate biology as it gives them something to do. This is why manures often perform beyond their analysis, and is part of the story behind natural citrate soluble fertilisers.



*Compounded Citrate and Silica based controlled release fertiliser*

*Another reason to avoid over applying soluble fertilisers, is their tendency to lock up. Calcium Phosphates for example, make pretty good cement. Try pushing a root through that!*



*Sown on 50Kg/Ha DAP Dowerin 2012  
Further replicated trial in progress*



*Sown on 50Kg/Ha Prime NP - Dowerin 2012*

## Encourage beneficial biology

- Get your soil in balance – not just pH, but soil chemistry. Surprisingly this has a direct impact on biological activity, as healthy plants create habitat for beneficial bugs.



Remember that dark stain you sometimes see amongst soil and Roots. A good indicator of beneficial biology, is when you see soil becoming glued to plant roots. This indicates good soil root connection, and can vastly increase moisture storage and accessibility.

A healthy plant secretes excess sugars into the soil like a kind of lubrication as they push through the soil. This is a valuable food source for beneficial microbes who flock to it rapidly colonising the rootzone, subsequently providing all kinds of benefits such as nutrient release, protection from pathogens, plant hormone production and polymerising of carbon into humus.

This results in root stimulation, moisture retention and a buffer against dehydration.

## Value your roots!

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