



Pioneer plants in sandy soil in arid and semi-arid areas

Pioneer plants

Whenever someone needs to stabilise the ground in an arid or semi-arid area with sandy soil they will face a challenging natural environment because sandy soil does not hold water. As a result, the soil is not full of the nutrients needed to give seedlings the best foundations to grow strong and fast.

An instinctive reaction to combat this issue would be to feed the soil with vast amounts of water and fertiliser. However, in an arid or semi-arid zone water is such a precious commodity and, in some areas, evaporating at an unprecedented rate. Using water in this way is no longer sustainable.

Therefore, a more strategic approach is needed, to ensure that water is used sparingly and efficiently to maximise the best growth opportunities through creating robust root bio-masses in the soil, enabling plants to continually flourish with minimal impact to the environment.

The solution - GR42

GR42 gives a sandy soil the ability to slowly absorb water and retain it for the plant. While doing so, the micro-fibres within the composition start to slowly degrade converting GR42 (through micro fungus and micro-organism) into a natural fertiliser for the plants.

This process supplies all the base elements in a constant way to the pioneer plant (like grass etc.) roots, helping to ensure that pioneer plants grow much faster and stronger than regular plants enabling them to be successfully established within the sandy soil.

GR42 also allows for flexibility, as a plant can either be cultured in a nursery first before transferring into a field, or it can be planted directly into the field, depending on the topographical situation.



Root development with GR42



GR42 has been tested on seasonal crops in India. Two fallow fields were used in the test and only seeded with pioneer plants.

The results were analysed 12 weeks after the rainy season:

The grass in the 'control field' developed to "normal standards" with an average small root which gradually turned brown in colour (a sign it was drying out).

Whereas the field using GR42 produced grass, three times higher with roots four times larger and healthier than the roots in the 'control field'.

It is also important to note that during this testing period no additional water was given to either field. The test results in India further supported the outcome seen from a test site in Australia (the Gateway Project) where GR42 was used. In this instance the number of trees increased from 20% to 80%.

Low maintenance



In the left picture a field can be seen, the front section uses GR42 and the back part is without.

No extra Water.
No fertiliser.

The results speak for themselves.

The potential



- Turn soil from an agricultural useless condition into a fertile soil thus increasing a country's agricultural yield potential
- Stabilise the ground against erosion with minimal effort and cost
- Water levels are conserved whilst agricultural opportunities are maximised
- Free from toxic elements ensuring ground water remains unpolluted
- 80% survival rate for trees in the „plant and forget“ principle
- No need to prepare the ground with topsoil
- Micro fertilising (up to 8 years) and water saving (up to 6 years)
- A healthier ecosystem is being created whilst higher harvests are achieved

rain fall		Weeks after rain season	2		4		6		8		10		12	
days	total mm	Pioneer Plants	height in cm	root size in Ø cm	height in cm	root size in Ø cm	height in cm	root size in Ø cm	height in cm	root size in Ø cm	height in cm	root size in Ø cm	height in cm	root size in Ø cm
14	1200	with GR	12	14	17	24	30	36	45	35	51	42	60	45
14	1200	without	6	9	8	12	14	14	20	15	20	17	18	17