



## General Cultivation Guides

### Drought in the UK, a natural solution for British gardeners

Some areas of the UK are suffering from the driest years on record. If this trend continues it could prove to be a very difficult growing season for gardeners throughout the UK. Many thousands of pounds may be lost by buying plants that go on to die due to a lack of water.

With many gardeners prevented from using hose pipes, the traditional gardening methods of using high inputs of water and chemical fertilizer will not work since the nutrients do not have water in which to move in the soil towards the roots of the plant.

However it appears that nature has a solution. After all how do plants grow quite happily in deserts and arid environments throughout the world? Is there something that can be learnt from studying plants in those environments?

This research has been going on for decades and there is a great deal already known about drought survival mechanisms and one of the most important is an entire group of friendly fungi called mycorrhizal fungi that live on the roots of virtually every plant on the planet.

There is now much scientific evidence to support the fact that mycorrhizal fungi can provide a reliable natural mechanism for plants to enhance drought tolerance. Plants shown to benefit include tomatoes, roses, corn, ornamental flowers and trees. This data collected through scientific field trials as well as those done under more commercial situations through observations shows a strong trend that applying mycorrhizal fungi to freshly planted plants can enhance survival rates and drought tolerance in the difficult first three years of establishment.

#### How mycorrhizal fungi enable plants to cope with drought

1. Under reduced water application the fungi enable the plants to function for longer and extract the maximum amount of water remaining in the soil. A plant without these fungi does not do this and relies on routine high levels of irrigation or well distributed rainfall. This is primarily the result of the huge volume of soil explored by the fungal strands - in 7 kg of soil there could be up to 7 kilometres of mycorrhizal fungi root! Nutrients can therefore be taken up for plant development whereas a nonmycorrhizal plant would have simply shut-down.
2. The fungi exude a sticky glue-like substance in the soil which hosts many beneficial bacteria as well as building the soil structure and keeping it close to the plant roots. This is important for nutrient uptake.

3. The fungi also seem able to increase the rate at which water is moved from roots to shoots in plants, an indirect mechanism for better water uptake. Low levels of water in the soil means that no nutrients will move towards the plant roots if the fungi are absent (remember there are up to 14m of such fungal strands in a sugar cube sized volume of soil). Therefore the fungi actually take up water in these fungal strands and move it into the plant roots along with many important nutrients like phosphates and other elements important for plant growth and survival.

4. The benefits to the plant of its friendly fungal partner actually increases as the drought conditions get more severe. These fungi are symbiotic organisms and can not survive without a host plant. Therefore it is in the fungi's 'interest' to keep its host plant alive at any cost.

### **'Rootgrow' the natural solution**

Rootgrow is a range of products containing mycorrhizal fungi (at least 5 in each product) some of which are specifically adapted to water stress conditions. By applying these fungi (rootgrow) at planting time this will make sure your plants will get the best chance of survival in some of the driest years on record.

These mechanisms are the reason why plants can grow in semi-arid ecosystems and agriculture. We must start to utilise this beneficial role of the fungi if we believe water shortages are here for the foreseeable future.

Rootgrow provides that solution.