

“Scotty’s Tips” - Waterlogging

Vegetables
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Travelling around Tasmania, northern Victoria and southern NSW recently it was obvious crops in many areas are suffering the affliction of waterlogging. Crops suffering from this stress often wilt, the leaves can turn yellow due to iron chlorosis or nitrogen deficiency, tree branches may dieback and in some cases the crops even die. Vegetable crops, young trees and vines are most at risk due to their lack of a sufficiently strong, extensive root system to cope with the conditions.

Prolonged periods of high rainfall can impact on the yield and quality of crops already in the ground and can have ongoing effects on the program such as delaying the planting dates of future crops or changing the cropping options.

Waterlogging is caused when the soil becomes saturated due to more rain falling than the soil can absorb, or the atmosphere simply doesn't evaporate the water quickly enough. Whenever the soil profile has excess water, the pores in the soil contain less oxygen. Plant roots require the presence of oxygen to respire and maintain health. Over time, insufficient oxygen in the soil causes root cells to die before the roots themselves start to expire. If this is prolonged, and the roots are not feeding the plant with sufficient nutrients, yield or crop quality is compromised and ultimately the plant can die.

Different plant species have different demands for oxygen. For example, vegetable and flower crops are not able to survive as long as certain tree crops can without soil oxygen. It's not all about oxygen though, other gases can also accumulate in waterlogged root zones, such as carbon dioxide and ethylene, causing the plant distress and demotes root growth.

Furthermore, additional problems associated with excess water either laying on, or flowing across, the soil surface include possible heat load from stagnant water and chemical and biological contaminants. Shallow still water can heat up on warm days and cause further damage to plants, and in some circumstances, if the water is moving over your land, may contain chemical or biological contaminants. This scenario can pose serious issues in terms of MRL breeches, chemical damage to existing or future crops, or plant-back issues.

Crops affected by waterlogging or flood damage are likely to already have significant root damage, so managing irrigation after periods of flooding or waterlogging is absolutely critical. To maximise the chance of crop recovery and to avoid continuing plant stress, growers should schedule small amounts of frequent irrigations until the root system has recovered.

Roots often rot as a result of periods of prolonged soil saturation and many of these 'root rots' are caused by the wide array of *pythium* and *phytophthora* fungi that abound in the soil just waiting for the right opportunity. Metalaxyl-M (found in RIDOMIL® products) is the fungicide of choice that can be useful in managing *pythium* and *phytophthora*.

Growers should refer to the product label for further directions.

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