



*Prime your turf for the battle against disease this winter.*

*A highly advanced approach to disease management  
without fungicides, exclusive to AGS.*

**AGS Winter Prime Package**

**Prime your turf for the battle against disease this winter. A highly advanced approach to disease management without fungicides, exclusive to AGS. We all know that keeping disease at bay throughout the winter isn't getting any easier... take some of the pressure off, PRIME your turf now!**

- Reduce the likelihood of disease attacks throughout the Autumn and Winter.
- Improve turf quality and colour.
- Reduce reliance on fungicides.
- Improve turf density and wear tolerance.
- Give turf the best chance of going into Spring clean and healthy, ready for play!

## Xtra Iron - 10Lh/Ha

Iron has long been used in turf disease prevention programmes, largely due to its ability to create an environment at the turf surface that is not conducive to disease and prevent mycelial growth (fig 1). X-Xtra Iron is fully chelated with a very low pH to give a natural green up and reduce disease.



## New Addition - Citric acid 5L/Ha



Citric Acid has demonstrated fungal control, making it useful in combating various fungal diseases in plants including turfgrass. These fungicidal properties can be attributed to a number of factors:

### Disruption of Fungal Cell Membranes

The acidic nature of citric acid can disrupt the cell membranes of various fungi. This can result in the leakage of cellular components and eventually lead to the death of the fungal cells.

### pH Changes

As a weak organic acid, citric acid lowers the environmental pH. Many fungal species have a preferred pH range for growth and reproduction. Lowering the pH can inhibit fungal growth or even kill the fungus.

### Sporulation Inhibition

Citric acid can inhibit the process of sporulation, which is the production of spores in fungi. Spores are a critical part of the fungal lifecycle and are often responsible for disease spread. By inhibiting sporulation, citric acid can prevent the spread of the fungal disease.

### Metabolic Disruption

Citric acid is a key component in the citric acid cycle (also known as Krebs cycle or TCA cycle), a metabolic pathway used by all aerobic organisms to release stored energy. In certain concentrations, citric acid can interfere with this process in fungi, disrupting their metabolism and growth.

## Physiological Effects of Salicylic Acid

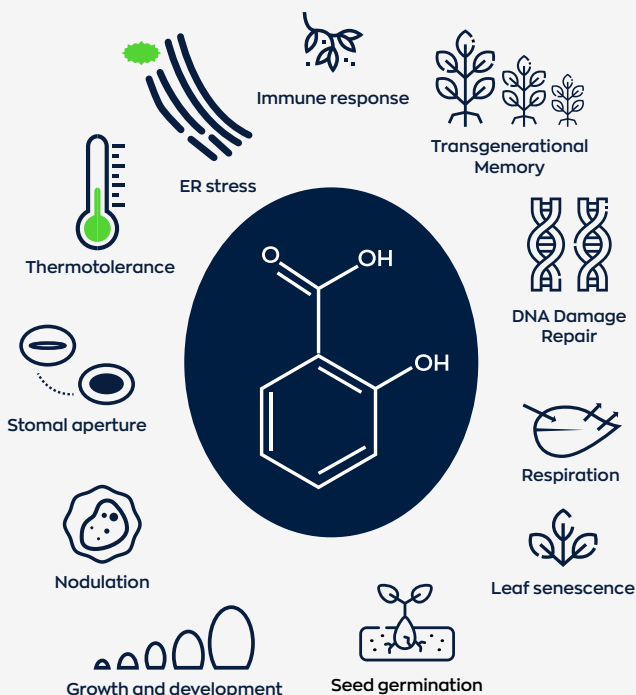


Figure 1: The Physiological Effects of Salicylic Acid on Plants

## System Acquired Resistance (SAR) Activator - 10L/Ha



10% Salicylic acid solution formulated to induce Systemic Acquired Resistance (SAR) in plants. The natural defence mechanism to abiotic and biotic stresses through morphological, physiological and biochemical mechanisms. It has been part of numerous studies confirming it as a key stress mitigation compound.

# Winter Prime Package

## Cal-Mag 7.0.3 - 10L/Ha

Cal-Mag Prime is an effective Autumn/Winter turf hardener, strengthening cell walls thus further reducing the likelihood of a damaging disease attack (figure 3). It contains a small amount nitrate N, directly available to the plant, to further boost plant health and assist effective uptake of the PRIME package.



## Ca Calcium

The role of calcium in crop production

- Ca Ca & Mg activates a number of plant growth regulating enzyme systems. These enzymes are involved in numerous processes within the plant's cells that contribute to its overall health and growth.
- Ca Mg is involved in protein synthesis, which is crucial for plant growth and resilience to environmental stress.
- Ca Magnesium plays an important role in the metabolism of carbohydrates in plants, which can affect the overall vigor and growth rate of the grass.
- Ca Calcium is responsible for plant cell division and for strengthening cell walls within the plant. By strengthening cell walls, it helps grasses maintain turgor and rigidity when withstanding various forms of stress, including: heat, drought, and disease.
- Ca Ca aids in the process of nutrient uptake by helping to regulate the opening and closing of stomata. Proper stomatal function helps in nutrient and water absorption.

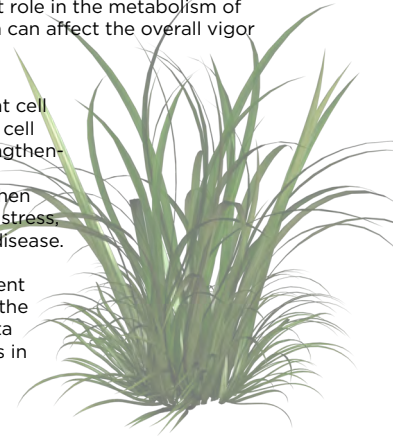


Figure 2: Calcium & Magnesium. The role of calcium and magnesium in crop production.



Figure 3: Stop mycelial growth in its tracks



Figure 4: Don't let disease take hold. TKO Phosphite, proven to reduce the incidence of Microdochium Patch.

## TKO Phosphite - 8L/Ha



Phosphite is well documented at reducing the incidence of Microdochium Patch (Figure 4) in managed amenity turf. TKO Phosphite is THE most concentrated Phosphite on the market, supplying 0.82kg of Phosphite per L. It is vital to use phosphites in a programmed approach, at label rates. TKO Phosphite is one of the best non-fungicidal disease prevention tools available to turf managers.

## RECOMMENDATION PER HA

- 5L PH Reducer
- 8L TKO Phosphite
- 10L Xtra Iron
- 10L SAR Activator
- 10L Cal-Mag

Apply to tank in this order: pH Reducer 5L/ha. TKO Phosphite 8L/ha in 200L-300L/ha of water, at this rate. X-Xtra Iron 10L/ha. SAR Activator 10L/ha and Cal-Mag 10L/ha at this rate or bi-monthly at half rate for best results.

Apply monthly throughout the Autumn/Winter and at any other time when disease pressure is high. Particularly effective when applied close to disease pressure periods.



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