

# Stop Using Chlorine!

The use of chlorine as a general purpose horticultural disinfectant is widespread. Historically this has been the results of its low cost, ease of use & availability, but in deference to its damaging side effects. Times and attitudes though are changing.

These are some of the reasons why;

- Plants are extremely sensitive to chlorine
- Chlorine is very phyto-toxic in concentration
- Chlorine levels normally required to achieve the elimination of pathogenic organisms are inherently phyto-toxic to plants.
- Toxic Symptoms in plants occur as; Marginal chlorosis, then General leaf chlorosis, then Necrosi
- Chlorine does not prevent the build-up of biofilms
- Sub-lethal doses permit an evolution of resistance
- Flushing & rinsing of the system is required before replanting
- Water used to flush system must be free of pathogens to prevent recontamination of system
- Wastewater containing chlorine residuals is eco-toxic
- It produces carcinogenic by-products in organically contaminated water. (THM's)
- Slow reaction time means chlorinated water must be held in storage tanks prior to use
- Treated water must be allowed to stand until chlorine has dropped to zero
- Residual chlorine can cause crop failure in early stages
- Incorrect use of chlorine can result in more damage than pathogen attack
- Careful monitoring of roots is required while chlorinating
- Chlorine use can deplete oxygen levels in water
- Chlorine effectiveness is highly pH & temperature dependent

Citrox, on the other hand;

- Is not toxic to plants
- Can treat the irrigation water without stressing the plants
- Pathogens are unable to develop a resistance to it over time
- Prevents the build-up of biofilms in the irrigation system
- Flushing or rinsing of the system is not required after treatment
- Fast acting
- Effective over a very wide pH and temperature range