Testing chlorine levels in irrigation water

NIASA, the Nursery Industry Accreditation Scheme Australia advocates a 'free chlorine' residual reading of 2ppm or 2mg/litre following at contact period of 20 minutes for the successful treatment of irrigation water. There are a range of test kits, test strips, and meters available for accurately measuring the chlorine concentration in the disinfested irrigation water and also capable of testing for pH values.

A range of pool chlorine test kits are available that can be used to measure levels up to 5ppm of chlorine in an irrigation water sample. These test kits operate by adding a small foil packed DPD#1 tablet to a measured sample of water, which changes colour to determine the chlorine concentration. A colour palette is provided to compare and identify the concentration. The more intense the pink colour of the sample, the higher the concentration. Pool testing kits generally also include the ability to measure pH levels within a specific range.

Comparator tests are another visual means to assess the chlorine concentration in an irrigation water sample. Comparator tests are both convenient and simple, utilising a selection of interchangeable comparison discs specific to a concentration range. A single DPD#1 tablet is added to a water sample and placed in the comparator and then compared against the different colour shades on the appropriate comparator disc. Chlorine concentrations between 0 and 5ppm can be measured using a comparator and DPD#1 tablets. Comparators can also be used to assess pH values by using a different reagent and coloured discs.

A variety of test strips are available to measure free chlorine concentration levels in disinfested irrigation water. Test strips can measure the concentration of chlorine at levels up to 10ppm. Test strips are also available to measure pH values and should be purchased for the intended pH band range. It is vitally important that test strips are handled carefully and kept in their sealed air tight container.

A number of meters are available to test for chlorine concentrations in water samples but are generally more expensive than the above options. Probes and meters can be incorporated into an automated chlorine disinfestation system, but pool test kits, comparators and test strips provide the checks and balance to such a system. Test meters may be useful in some circumstances where visual identification and comparison of colours is difficult.

When testing for chlorine concentration and pH values it is important to ensure the sample is an accurate representation of the whole water body. Comparing colour values in any of the above methods is best conducted under natural light and against similar backgrounds to ensure consistent results. If test results provide values at the limit of the test equipment, it is then best to dilute the sample to achieve a true reading.

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