Technical Note

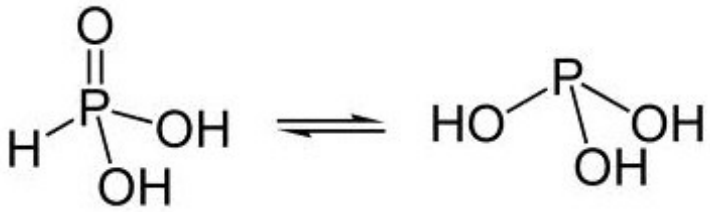
PHOSPHONATE TESTING IN AVOCADO ROOT

Introduction

Growers that use phosphonate to control Phytophthora can test the roots of their avocado trees for treatment effectiveness. The phosphonate analysis was developed in consultation with the Avocado Industry Association and is designed specifically to meet the quality requirements of the New Zealand avocado grower. With our leading-edge technology and reliable method, results are reported within 5-10 days of samples being received in the laboratory.

What is Phosphonate?

Phosphonate is used to describe salts of Phosphonic/Phosphorous acid: H_3PO_3, MW 82. These two acids exist in an equilibrium with Phosphonic acid being the predominant form. This acid is commonly purchased as Potassium Phosphonate (KH_2PO_3 or K_2HPO_3).



Phosphonic acid Phosphorous acid

Why test for Phosphonate?

Phosphonate is sometimes injected into the roots of trees to help protect against the effects of Phytophthora, a fungal like organism responsible for damaging plants. Once injected phosphonate trans-locates to leaves and to the root system where it protects feeder roots against Phytophthora root rot. Knowing the phosphonate levels in the roots will help the grower assess the effectiveness of the treatment, by considering aspects such as timing of treatment, method used, and the length of time it was effective.

Sampling Guidelines

Please note: Acknowledgement to the Avocado Industry Council for sampling guidelines. Please refer to their website for further information: http://industry.nzavocado.co.nz

- The preferred (but not essential) time-frame for sampling is approximately 3-8 weeks after treatment
- Sample during a root flush (Spring or Autumn) so that the majority of the sample comes from the new feeder roots from the mulch layer
- Sample representatively
- Select a block of trees
- Choose trees of similar age, health and history
- Take root samples from several trees and from a range of positions around each tree
- Try and keep the root lengths as long as possible
- Wrap in a paper towel, and put into the sample bag, which has been clearly labelled with the Sample Identification. (If you don't have one of our Sample Kits, a clean paper envelope or zip-lock bag is fine)
- Send samples and completed Analysis Request form to the laboratory as soon as practical after sampling, to avoid deterioration
- If required, samples can be frozen prior to sending to the laboratory for analysis

Do not wash the dirt off the roots; the Phosphonate ion is very water soluble, and easily leached.
Handle carefully – Avocado roots are soft and easily damaged.

Sampling Supplies

Sampling Supplies For your convenience, we have complimentary Sample Kits available. These consist of 2 large sample bags, the Analysis Request form and a courier bag for returning the sample/s to the laboratory.

For more information, freephone 0508 HILL LAB 44 555 22 mail@hill-labs.co.nz hill-labs.co.nz