

**Introduction**

As there are no control measures available for Panama TR4 implementing a range of on-farm biosecurity practices is essential to reducing the likelihood of Panama Tropical Race 4, or any other pest or disease entering your property. As with all aspects of on-farm biosecurity, you should first focus on how you can exclude people, machinery, vehicles or equipment, before you think about treating them. By following the process of **Assess, Identify, Implement, Inform** you are well on your way to implementing effective biosecurity exclusion strategies. Footbaths add an effective biosecurity layer to manage disease risk pathways onto and off your farm.

**Design of footbaths**

Footbaths are a way to add layers to your biosecurity regime by decontaminating potentially contaminated footwear from worn anywhere on the property. This includes any footwear worn by staff, contractors, or any other visitor. Consider your own shoes that you wear to town as potentially contaminated. The use of disinfecting chemicals to kill spores carried on footwear is key to their effectiveness and it is critical that the correct combination of concentration and contact time is achieved. Soil and organic matter is known to reduce the efficacy of disinfecting chemicals so it is important that footbaths are well maintained. Regardless of the design of footbaths, they must satisfy some fundamental criteria for them to be effective;

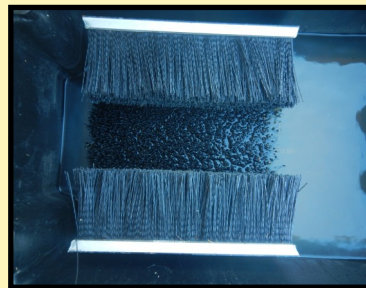
- Footbaths should be situated in an appropriate place at the interface of the Separation zone and public areas i.e. At the front entrance to the property. The station needs to perform its function for foot traffic both entering and exiting the property. Ideally they should be used in conjunction with a footwear exchange station at this critical point.
- Heavily contaminated footwear should be scrubbed and rinsed before they are put through the footbath. Spores protected inside clods of dirt will not be affected by the disinfecting chemical. It also helps the footbath from being loaded with soil and reduces the burden of maintenance. A hard surface at entry and exit to the footbath suppresses mud around it and prevents unnecessary loading of the footbath with soil.
- The footbath should accommodate two full steps to allow sufficient contact time between chemical and spore.
- Design the footbath to prevent avoidance.
- Situate the footbath under cover so that the disinfecting does not become diluted or overflow in heavy rain.
- Dispose of old chemical as if it were contaminated with live spores.

**Summary**

Footbaths are an effective way of decontaminating footwear that has been worn in public areas, non-contiguous blocks, critical production areas or indeed on other banana farms. They define pathways for foot traffic and provide a point where footwear can be treated with chemicals that are known to kill Panama TR4 spores. Rates for effective killing of spores are described on the label and easy to use test kits are available to measure concentration. It is critical that these chemicals are rejuvenated regularly as poorly maintained footbaths may exacerbate the spread of spores. **A key element of footbaths is that they create a biosecurity system that is layered. By having a layered approach to biosecurity, it spreads the biosecurity risk across a range of measures, as no single biosecurity practice is 100% effective, 100% of the time.**



*Figure 1: Footbaths should be located along foot traffic pathways where zones are crossed or at other critical points. This example accommodates for off-farm pickup/ delivery drivers needing to access the packing shed.*



*Figure 2: Boot scrubbing brushes remove surface dirt and clods caught in the tread.*

*Figure 3: Footbaths provide an extra layer of protection when used in conjunction with footwear exchange stations.*



*Figure 4: Footbaths should be designed to prevent avoidance. This example has rails to direct foot traffic through it. Include signage so visitors are aware of the requirement to walk through the footbath. Hard surfaces around it suppress mud preventing recontamination after use and unnecessary loading of the footbath with soil and organic matter. Being under cover prevents the chemical from being diluted and the footbath overflowing in heavy rain.*



