

# ORCHARD SOIL AND TREE REMEDIATION POST-CYCLONE EVENTS

**The following guidance has been developed by Summerfruit New Zealand, AgFirst and Hortcentre as an orchard-specific resource to assist cyclone-affected growers in their orchard recovery. Please note, this document does not replace official MPI guidance.**

Decide on the salvage potential of the crops on your orchard. If a particular block is not worth salvaging, put your effort into blocks that are. Gather plenty of photographic and video evidence (for insurance purposes). If there is less than 300mm of silt on the soil, remediation may be possible.

- Check for hazards such as contaminated silt and water, portaloos, fuel tanks, logs and shelter trees that may yet come down
- Get the water off the orchard as soon as possible, in any manner that you can think of. If that is not possible, try to keep the water moving. Moving water has some oxygen, whereas stagnant water does not. Check sumps, culverts and drains for blockages. 72 hours of non-moving water is considered survivable
- Remove potential contaminants. Sources of contamination may be fuel tanks, chemicals, equipment, animal faeces and dead animals. Think about septic tank contaminated soil and water. Always wear Personal Protective Equipment (PPE) when dealing with potential contaminants and flood water
- Clear the silt from around the trunk to a radius of 300mm. This will reduce the potential of collar rots, get some air into the soil in a critical place, and minimise scion rooting. Try not to damage roots in this process. This could be an achievable outcome in up to 300mm of sludge
- As soon as practicable, apply products such as captan to minimise diseases. Other products can be used but consider withhold periods if fruit is to be picked. If spraying, add some calcium to help with fruit quality. Helicopters are an option
- Consider products that will reduce tree stress, such as amino acids
- Move reflective cloth to allow the sun and wind to aid drying. This might be to the trunk line or the middle of the row
- Prop up trees. Better to do this soon even to a temporary stage. This will make a permanent fix later easier and allow better machinery access
- Phosphorous acid can be applied to minimise phytophthora risk. This is only an option if fruit is not to be picked. This applies for export, NZ market or juice

- Shake fruit from trees that will not be sold. This should be at normal harvest time or soon afterwards. Biennial bearing is a problem to avoid where possible. Ethel applications, with care, will help loosen fruit
- Apply low rates of nitrogen, foliar or granular, at 20kg N/ha to stimulate root growth and microbiological life in the soil.
- Consider soil-applied products to aid soil biology. Check to see if there are live worms already
- When the silt is workable, mix it into the existing profile. This could be an option where there is 250mm or less to work in. Then get some seeds into the soil. Grass and ryegrass in the first instance and then other broadleaves if available. Make sure they are deep rooting species to start rebuilding the soil profile. Low profile seeders are ideal, but broadcast and then light cultivation also works
- If you need equipment or orchard machinery to continue operations, utilise the Resource Finder portal: [www.nzapifinder.co.nz](http://www.nzapifinder.co.nz)
- These silt and clay particles are part of the natural process that has built the Heretaunga Plains. It is not contaminated, just the mineral fraction that will in time become soil.

Removing the silt is a huge job. A deposit of 100mm is 1000 cubic meters per hectare that needs to be removed. But it is possible.

