



Nursery & Garden Industry
Queensland

Disinfestation of Nursery Equipment and Surfaces



Disinfestation of the various equipment and surfaces used in a production nursery form the basis of sound hygiene practices. Disinfestation procedures should be an integral part of all nursery growing processes, with regular reviews being carried out to ensure practices are being implemented correctly. The following outlines recommended disinfestation procedures for nursery equipment and surfaces.

Recommended disinfectants—actual disinfectant used depends on the surface or equipment being disinfested:

- 70% methylated spirits and 30% water solution.
- Chlorine based disinfectants, e.g. 2% sodium hypochlorite.
- Quaternary ammonium compounds (QUATs).
- Sunlight soap, Savlon or Dettol antiseptic soap hand washes.
- Copper compounds, e.g. copper sulphate.
- Aerated steam (non-chemical).

Preparation and use of disinfectant solutions

- Follow all label directions and safety precautions when handling chemicals.
- Only use freshly prepared disinfectant solutions.
- Chlorine based disinfectants must be made up at least fresh daily. Store undiluted chlorine out of sunlight and in a cool room below 28 °C.
- QUATs are incompatible with most cleaners and detergents, and have low tolerance to hard water (calcium carbonate (CaCO₃) levels above 120 mg/L). QUATs leave a residual anti-microbial film on surfaces. At concentrations greater than 1–10 ppm QUATs are regarded as highly toxic to some aquatic life forms. Some QUATs are toxic to plants.
- Copper sulphate can be extremely toxic in low alkalinity water, and is ineffective at high pH levels. Copper compounds are persistent, but can be absorbed by soil and organic matter. They can also be lethal to some aquatic organisms.
- Dispose of spent disinfectant solutions as per the product label.

Stainless steel, metal, plastic, painted surfaces, concrete, cement sheet, gravel and sand beds

- Benches and other working surfaces need to be made of non-porous material, for example stainless steel or laminate. Timber and other porous surfaces cannot be disinfested properly. However, covering them in a plastic sheet can help maintain hygiene.
- To disinfest these surfaces, remove all organic matter and soil and rinse with fresh clean water.
- For non-porous working surfaces, scrub clean or pressure clean all surfaces in contact with crop inputs with a disinfectant or detergent, e.g. 70% methylated spirits and 30% water.
- For porous surfaces such as gravel and sand beds, remove as much organic material and soil as possible and treat with an appropriate disinfectant. Porous surfaces require more time in contact with the disinfectant (at least 1 hour).

Hands

- Use disposable gloves and change between operations.
- Wash hands thoroughly between operations using a hand disinfectant such as Sunlight soap, Savlon or Dettol antiseptic soap.

Footwear

- Change footwear and only use designated footwear in the working area, **or**
- scrub footwear clean and spray with a disinfectant or detergent solution, **or**
- install footbaths at all entries to the production area, **or**
- provide boot covers.

Clothing

- Work in clean areas early in the working day.
- Regularly inspect clothing for contamination.
- Wash clothing in water and detergent after each day's use.

Plastic containers and trays

- *If applying a chemical disinfectant remove all dirt and organic matter from containers by washing with clean water.*
- *Place un-stacked containers in the disinfectant solution at the appropriate concentration and for a minimum of 20 minutes.*
- *Alternatively, pasteurise using aerated steam at 60 °C for 30 minutes in the centre of the load. Containers don't need to be cleaned or unstacked.*
- *Store treated containers in a clean area away from soil and other contaminants.*

Knives and other cutting instruments

- *Scrub clean of dried sap and other contaminants using a scourer or similar.*
- *Apply a disinfectant, e.g. 2% sodium hypochlorite for 1 minute, or detergent, or 70% methylated spirits 30% water solution and allow to dry.*
- *After drying rinse in clean disinfested water to remove excess chemical if necessary.*

Tools, spades, bobcat buckets, etc

- *Remove all organic matter and soil then rinse with fresh clean water.*
- *Scrub clean or pressure clean all surfaces in contact with crop inputs with a disinfectant or detergent.*

Wood materials

- *Use heat treatment at 60 °C for 30 minutes with items placed to allow steam penetration, or*
- *remove all organic material from surfaces, rinse and scrub prior to using chemical disinfectants, e.g. copper compounds, and allow to dry.*

Vehicles

- *Sweep out trays and beds etc.*
- *Collect sweepings and dispose of appropriately.*
- *Pre-wash all areas and, if required, scrub or pressure clean to remove organic matter and soil using clean fresh water.*
- *Disinfest using a appropriate disinfectant or detergent, e.g. QUAT, focusing on trays, tyres, wheel wells and under vehicle.*

Machinery

- *Remove attachments and covers to enable access to all areas.*
- *Remove by hand or sweep loose organic material from machinery and dispose of appropriately.*
- *Pre-wash all areas and, if required, scrub or pressure clean to remove organic matter and soil using clean fresh water.*
- *Disinfest using a appropriate disinfectant or detergent, e.g. QUAT, focusing on trays, tyres, wheel wells and under bodies.*

Management and procedures

- *All nursery staff need to have a 'hygiene' state of mind. They should be thinking about hygiene all the time, and be aware of protocols and procedures.*
- *If using re-cycled or surface water, ensure the water is thoroughly disinfested prior to use.*
- *Always wash hands before and after eating, smoking and using the bathroom.*
- *Install easily accessible soap dispensers and cleaning stations around the nursery.*

For videos on disinfestation procedures visit the Nursery Production Farm Management website—<http://nurseryproductionfms.com.au/>

Information on nursery hygiene and disinfestation procedures can be found in the Nursery Industry Accreditation Scheme Australia (NIASA) Best Management Practice Guidelines, and BioSecure HACCP guidelines.

For further information refer to:

'The Nursery Papers - Hygiene in the nursery—Disinfecting production surfaces; cement, gravel, capillary mats and sand beds'—Issue no 2000/05 and 'The Nursery Papers - Hygiene and sanitation of working surfaces in the nursery' - Issue no. 2000/03.

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