



System Maintenance

For preventing blocked drippers and brown roots

Grow room heat + humidity = perfect breeding environment for nasties that invade nutrient solutions and roots. Combating this will make the difference between a perfect yield and NO yield. FloraMax System Maintenance ensures the growing system delivers consistent yields all-year-round:

- Prevents root browning and plumbing blockages. When organic or sugary additives are used, System Maintenance helps prevent “that” white, cloudy muck from forming.
- Serves as a cleaner for tools and system hardware during post harvest cleanup.
- Compatible with all nutrient types including sensitive organic’s and beneficial bacteria.
- Dosage 2ml/L in nutrient (or 25ml/L as hardware cleaner | Available in: 250ml // 1L // 5L // 20L

TESTIMONIES

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“Root browning and plant death are no longer a threat to our plants. This is saving us a fortune!”

“When the day temperatures rise we get white slimes growing in the reservoir. This stuff goes through our system blocking pumps, drippers and pipes... System Maintenance has stopped this from happening, which has saved us A LOT of unnecessary maintenance and guaranteed our plants are getting watered on time.”

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Pests such as fungus gnat and diseases like pythium can rapidly spread throughout a system causing severe damage, or even plant death.

The following management practices will significantly reduce the risk of pests and diseases.

1. Maintain good general system hygiene: Diseased foliage should be promptly cut from plants and removed from the growing area along with other waste material. Surfaces must also be kept clean from dust, dirt and spillages.

2. Pest management: Insects feed off plant foliage causing leaves to turn pale and then drop. Some insects target and destroy roots (e.g. fungus gnat - Fig 11.2). They also spread diseases from one plant to another via sap transfer and therefore must be prevented from entering the system. To help achieve this, filter the air supply and minimize traffic into the growing area. To detect the presence of insects, use a magnifying glass to routinely inspect both sides of leaves, stems, medium and roots.

"Yellow sticky traps" are also useful as a forewarning (Fig 11.1).

3. Maintain the condition of the nutrient solution: To achieve this, dose with FloraMax System Maintenance.

4. Humidity: Controlling humidity will prevent spore germination for many diseases. Keeping 'relative humidity' at 50-70% offers the best compromise for both disease prevention and plant growth.

5. Pre-treat make-up water: Untreated surface waters (e.g. dam, creek) and stored water (e.g. rain tank) should be treated prior to use. To achieve this add Pythoff directly to the water at 1.5ml/Gal (0.4ml/L) then stir well. Store this water in the dark and do not use in the system for at least 24 hours. Disregard this treatment process for new tap waters or 'fresh' RO (reverse osmosis) waters.

6. Use a medium with good drainage properties: Poor drainage promotes fungal diseases and pest infestations.

7. Minimize plant stress: Maintain correct water and air temperature, light intensity, nutrient concentration and

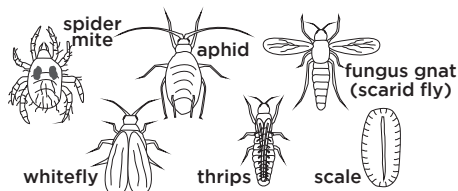


Fig 11.2 Common insects found in hydroponics. Insects spread disease from one plant to another via sap transfer and therefore must be prevented from entering the system.



Fig 11.3 Root browning is a typical symptom of the root disease 'pythium'.

pH. Doing this will help produce a strong, healthy plant that is best able to defend itself against disease attack.

8. Clean the system thoroughly between crops. This will help prevent disease problems in the next crop:

- **Step 1.** Remove plants and medium from the system then do as much manual cleaning as possible.

- **Step 2.** Partly fill the reservoir with water and lower its pH to between 4.5 and 6.0. Then, after providing good ventilation for the area and subdued light conditions, add household chlorine bleach (50g/L chlorine) at 20ml/Gal (5ml/L) and mix well.

- **Step 3.** Over a period of 24 hours, run the pump at least once every hour. Note, 'flooding' may be necessary to contact hidden surfaces e.g. underneath the upper surface of channels.

- **Step 4.** Discard this solution then flush the whole system several times with fresh water to remove all traces of chlorine and dislodged material. Where fine drippers and sprayers are used it may be necessary to individually dismantle and clean each unit.

9. Seeds and cuttings:

Ensure they are from a reliable source and disease free. Be aware that looks can be deceiving i.e. an incubation period is required for spores to germinate and become recognizable. Also, "unfavorable" conditions can cause diseases to lay dormant until conditions become favorable.

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System Maintenance helps maintain the condition of nutrient solutions