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## WINTER MAINTENANCE

This should really start in the field as follows:

1. General hygiene: Use Jet 5 as directed by your chemical advisor. Do **NOT** use hypochlorite products with pressure compensated drippers as the sensitive membrane may become damaged.
2. Carbonate precipitation : Remove drippers from bags and apply Nitric acid injecting at 2% strength until all lines in the block are filled with acidified water (or check with pH meter until the pH falls at the ends of the lines) Leave this for 12 hours before flushing through with clean water. Leaving these drippers hanging out of the bags will help keep them empty of water.
3. Drain the system down thoroughly. This includes drip lines. We do not want water to sit in the drip lines for the winter period. Online drippers (Bag systems) have a CNL system which keeps the pipe full of water so the ends of these drip lines have to be removed to benefit from the drain-down.
4. Ball valves should be left half open to allow trapped water behind the ball to escape. At least work it open and closed a few times to try release this water. Solenoid valves should have the water released from beneath the coil. This can be done by carefully removing the coil (watch for the plunger), allowing the water to drain and then replacing the coil again. Try removing water from the small bore tubes on pressure reducing solenoid valves.
5. Filters: It is recommended to replace the sand in the sand filters every season as the sand becomes rounded and inefficient, thus not being capable of trapping dirt. It would be best to remove the sand prior to winter and replacing the sand in spring. Screen and disc filters should have all components removed, rinsed, cleaned and checked for damage.
6. Injectors: Mechanical injectors should be removed and stored in a frost-free environment. Electronic injectors should be drained down as best as possible, probes removed and stored according to the instructions by the manufacturer. Many have heating circuits inside the controllers so leaving them on in a disabled status over winter will help protect circuits.
7. Controllers should be left on, in a disabled status, to keep heat in the circuits.
8. Pump units: Remove drain plugs as advised in the pump operation manual. This does not guarantee protection of the unit. Units with graphite bearings can still be damaged in a hard

frost as condensation within the pump will allow water to form on the shaft between the shaft and the graphite bearing, once frozen the bearing is shattered. The best advice is to protect the whole pump shed from frost by insulating and installing a frost protection heating system. Submersible pump units should be removed and stored in a dry frost free environment.

9. Galvanised water tanks: This is a case of managing the risk over winter. If the tank is needed over winter you will need to protect it from wind that may damage anti-algae covers, and insulate the outlet valves well. If it is not required over winter the cover can be removed and stored, the tank left empty. In spring you will have the opportunity to clean the tank and liner and is well worth the effort. However special consideration to your tank should be given when it is snowing as this can severely damage any tank. The cost of a replacement anti algae cover is such that wind protection around the tank may pay dividends in the future.

During the winter check the heating system is always operating. Manually rotate the pump by removing the coupling guard and rotating it by hand every week. Ensure it is isolated. This will help make sure nothing sticks inside the pump and help the bearings in the motor.

**On start-up:** remember to double check all pressures and flows.

Flush drip lines thoroughly to ensure that any stagnant water that was not drained out, will now be flushed out.

Often over-looked is the flow rate of a block, and this can be a direct health indicator of the drippers within that area. Higher than normal flow indicates a problem of leaks, lower than normal flow may indicate blockages which may be possible to be treated chemically if caught in time.

An on-line dripper system such as those with CNL or PCJ drippers should be checked after the initial start-up to ensure that any DNL's, if fitted, are working correctly.

Bad DNL performance will be noticed by a large amount of air exiting a block each time it is started, a sign the water that should be in the pipe has drained out by leaks or poor DNL performance, allowing drippers in susceptible areas within the block to drain down.

Good DNL performance is essential to getting the best out of an on-line dripper system as minutes can be wasted during each start of an irrigation cycle just filling pipes, which will cause erratic over/under watering in the affected areas, leading to inconsistent plant growth and yields.

### **Final note**

Remember no matter how advanced your irrigation system may be, poor maintenance will spoil your results. Always check with your advisors before injecting any chemicals, even those mentioned above.

Confirm with your irrigation advisor what your pressures should be, and check them regularly as well as the performance of the drip lines. Check your individual block flows regularly and maintain records.

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