

Fertigation management

Introduction

The effectiveness of fertigation is often dependant on the effectiveness of the irrigation system. The full advantages of irrigation and fertigation only become evident if the correct irrigation design and management is employed to meet plant requirements and to distribute water and fertiliser evenly.

Corrosion

Because of the corrosive nature of many fertilisers, the components of the irrigation system that come into contact with corrosive solutions should consist of stainless steel, plastic or other non-corrosive materials. Concentrations of total nutrients in the mainline should not exceed five grams/litre. Always mix fertilisers in sufficient volume of water. The following formula can be used to determine the injection rate:

$$\text{Maximum injection rate} = (5 \times Q \times L) \div (F \times 60)$$

where: Q = irrigation pump discharge in litres per second; L = fertiliser tank volume in litres and F = amount of fertiliser in grams.

Management program

For each crop there are many fertiliser programs. Fertigation allows you to change your program during the growing season, adjusting it to suit fruit, flower, shoot and root development. A program should be developed on the basis of leaf and soil analysis and tailored to suit your actual crop requirements.

Injection rates

The majority of injectors available today can generally incorporate automatic operation by fitting pulse transmitters which convert injector pulses into electric signals. These signals then control injection of preset quantities or proportions relative to flow rate of the irrigation system.



Injection rates can also be controlled by flow regulators, chemically resistant ball valves or by electronic or hydraulic control units and computers.

If fertilisers are not completely dissolved and mixed prior to injection into the system, this may result in varying concentrations applied or blockages within the system.

Suitable antisiphoning valves or non-return valves should be installed where necessary to prevent backflow or siphoning of water, fertiliser solution, or chemical solutions into fertiliser tanks, irrigation supply, household supply, stock supply and so on.

System hygiene

Fertigation increases the quantity of nutrients present in an irrigation system and this can lead to increased bacteria, algae and slime in the

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system. These should be removed at regular intervals by injection of chlorine or acid through the system. Chlorine injection should not be used while fertiliser is being injected into the system as the chlorine may tie up these nutrients making them unavailable to the plant.

Systems should always be flushed of nutrients before completion of irrigation. Before commencing a fertigation program, check fertiliser compatibilities and solubility. During the irrigation season it is important to monitor:

- pH effects over time in the root zone
- soil temperature effect on nutrient availability
- corrosion and blockages of outlets
- reaction with salts in the soil or water.

The information contained on this sheet was obtained from the New South Wales Department of Agriculture Agnote 100-9 and is gratefully acknowledged.

For more details contact the Growcom members access line on 1800 654 222

Disclaimer: This information is provided as a reference tool only. Seek professional advice for irrigation specifics.



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