

## **NETAFIM IRRIGATION DESIGN CONSIDERATIONS FOR ALL GROWERS**

When a grower asks an irrigation supplier for a system they do not always know what they want or how to ask for it. We lay out a few basics to take the mystery and difficulty out of this exercise.

### **◆ How much water to apply?**

This relates to the crop's consumption during a peak period and over the course of a season. E.g. Apples in the Hawkes Bay may require 7mm in any given day (or 49mm in a week).

Wine grapes may need between 100mm to 150mm over a season and this relates to dam capacity or water storage.

For Frost protection the crop requires approximately 1mm/hr for every degree Celsius below zero eg a minus 4 degree Celsius frost could call for an application rate of about 4 mm/hr

### **◆ Soil type?**

This determines the water storage capacity of the soil and aids in the decision on dripper spacing and sprinkler or dripper output. Sandy (lighter) soils require closer spacing of drippers but have a higher infiltration rate – however their storage capacity is lower than heavier soils. E.g. on vines we would recommend spacings between 0.5m between drippers for very light soils up to a maximum of 1.0m for very heavy soils, regardless of vine spacing. This is in order to achieve a full wetted strip - with wider spacings of say 2m the contraction/expansion of the tube and variations in plant spacings will mean "dry spots" will occur and deaths or crop losses or both will result.

### **◆ Crop type?**

Different crops have different requirements, and their requirements differ with geographical areas.

### **◆ Slopes and run length**

This aids in the decision to use pressure compensating (P.C.) emitters or non-pressure compensating (Non P.C.) devices – be it sprinklers or drippers.

A proper survey or accurate spot heights at critical points will eliminate guess work and allow the designer to make the right decisions and select the correct equipment for the task. Less information will usually mean "over design" or a



cautious approach and hence a more expensive system. The bottom line is, it is worth going to the extra effort or expense to get this information.

#### ◆ **Expansion in the future?**

Let the designer know about the possible/probable 20-acre expansion after this year's project. Allowances can be made now for mainline and pump and filter selection. Too many systems are "tag on" efforts and result in huge inefficiencies or costly upgrades.

#### ◆ **Plant spacing and row spacing**

This allows the correct choice of sprinkler/dripper flow and spacing. Usually the easiest piece of information to provide.

#### ◆ **Water source and quality**

Usually the source and quality of water are intrinsically connected. Let the designer know as much about it as possible and always get a water analysis if there is any doubt as to the quality?

Important information is:

- pH
- iron level
- salt level
- carbonates

Special allowance can be made for filtration, emitter selection and maintenance considerations.

#### ◆ **Sprinkler or dripper?**

In most cases either will do the job well. However there are of course pluses and minuses for both. Often it may boil down to personal preference. The facts are drip irrigation is increasing while sprinklers are decreasing, in the broad sense.

#### ◆ **General**

Provide a sketch of the proposed blocks showing boundaries, headlands, Water source, future expansion, relevant heights etc. Including row direction.

Netafim or Netafim dealers can fax or post a "Check List" for growers to complete to enable quick and accurate design of irrigation systems.

They can advise on levels of uniformity of watering suitable for various crops. The grower should know what they are getting for their money. "Cheap is often nasty"-



go for quality and insist on value for money.

For further information please contact your nearest Netafim dealer or Netafim representative.

## **NETAFIM CONTACTS**

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