



STOCKER HORTICULTURAL & HYDROPONIC SUPPLIES (2004) LTD

PO Box 32, Tirau, State Highway 27, Matamata Road, Tirau, New Zealand.

Phone: 07-883-1051 Fax: 07-883-1052

Email: stocker@xtra.co.nz

Website: www.hydroponics.co.nz

Hydroponic Strawberry Production

This crop is grown in a NFT (Nutrient Film Technique) System. The propagated plant is planted out into gullies. Gullies should not exceed 15 metres in length and should have a fall of at least 1 in 40 down the 15 metres. Gullies should be rigid PVC in 100mm by 50mm or 150mm x 75mm dimensions. The preferred system uses the rigid PVC 150 x 75mm type for best results.

- Nutrient flow rate down the gully should be a maximum of 1 litre of nutrient per minute.
- CF range is 12-16 at planting rising to 22-24 at cropping.
- PH range is 6.0 to 6.5 (auto systems set at 6.3pH)
- It is essential to have good oxygenation of the nutrient, the easiest and cheapest way to ensure this is to use a venturi on a bypass from the pump back into the tank.

Pollination

Insects and air movement all assist in pollination, some varieties require assistance, ask your seed merchant. Minimum air temperatures are required to set good fruit.

Nutritional requirements

Plant growth promotants are often added to the nutrients to produce quality growth during periods of poor conditions, e.g. in winter under low light. The growth promotants, Agronomix at 20gms per 20 Kg of dry powder mix, and SGP at 500 mls per 20 Kg dry powders are added to the nutrient.

Nutrient formulation is blended to suit the water supply, so a water mineral analysis is essential for optimum formulation. No extra cost for this service.

Downwards pH correction is usually with Phosphoric Acid, but there may be situations where Phosphoric/Nitric Acid mixes are used, or even straight Nitric Acid at times, especially if the water supply has a high pH, above 7.8 for example.

Upwards pH correction is always carried out with Potassium Hydroxide. Common name is Caustic Potash.

Nutritional problems

Regular nutrient analysis and leaf analysis may be required to assist in producing top yield, especially in the first crop, or crops. With NFT systems, it's often advantageous to flush out the nutrient tank regularly to avoid a build up in toxic materials or to remove a nutritional imbalance. Also if the nutrient gets dirty and you don't fancy drinking it, then flush it out. Plants respond to clean nutrient and there will be far fewer problems from diseases if nutrient is regularly changed. Only nutrient analysis will show how long a specific system can run for until its out of balance, however 4 weeks is usually the maximum time between flushing. Remember, don't put cold water into the tank and circulate immediately, raise the temperature to that required in the root zone before turning on the pump. Don't chill off the roots on a hot day or freeze them in winter. Pre-heat the water to be applied.

Points to Note

The production of quality and quantity of fruit from strawberries is very dependent on the quality of the plant being used. Main things to remember are:

1. Propagation

The main types of plants used by commercial growers are from runners.

Runners are the daughter's plants produced by the mother plant; they are produced in the warm, long days of summer and early autumn. Runner production is a relatively inexpensive way to produce new plants. Supplies of virus and disease free runners are available in many countries, when purchasing runner plants, only buy those that are certified from clean stock plants.

The method of production of new plants by division of the crowns of older plants can have some drawbacks, disease from the last crop, and division damages the crown and new diseases can get into the plant.

2. Variety

Discuss with your markets, which varieties they prefer, and ask your plant suppliers which are the most popular in your area.

Should they be cool stored or fresh runners?

There are many varieties available; the main consideration is to determine what varieties will perform in your area, under your climatic conditions.

There are short day varieties, that fruit in short daylight conditions, less than 12 hours light, they have a typical cycle of, flower, fruit, and runner.

Daylight neutrals are not affected by daylight length, and will continue to produce flowers under all daylight conditions, providing temperatures are not too high, or too low. These plants have a different cycle; they flower, fruit and produce runners simultaneously.

The third type are 'Ever Bearing' varieties, these have a cycle of, flower, then fruit, then flower and fruit, with very few runners being produced.

3. Chilling

Strawberry plants like many temperate berry crops, have a need for chilling the plant in order to start the cycle. If the chilling is done correctly, by normal Autumn, Winter and Spring conditions, then the plants grow up and leaf up vigorously, then flower in a definite peak, fruit and move into runner production. If chilling is not done correctly, then the plants are not as vigorous, and even, resulting in erratic flowering. Each variety has a certain chilling requirement, and will perform best in areas where this is satisfied. Cultivars with little chilling requirement perform best in the warmer coastal areas. Those with the highest chilling requirement perform poorly in coastal warm areas, but produce well in cooler climates.

4. Temperatures

In addition to chilling, there is a requirement for both air and root temperature to be within the correct range. Air temperature can influence flowering response to daylight length. When warm and hot conditions occur, a temperature of 25°C or over, flowering is inhibited, regardless of daylight length. Air temperature also influences the timing of fruit production by its influence on plant growth. After flower buds have formed, some plant growth is needed to produce visible flowers and fruit, in cold areas plants can become dormant even after flower buds have formed, if the air temperature drops too low, the flowers will not develop until the plant is exposed to an increase in temperature. A minimum air temperature in daylight hours of 18°C is usual for most varieties (check with supplier) and 16°C at night, with root temperature never below 18°C. Ideal nutrient temperature ranges from 16 to 24°C.

Note: Some varieties may need different temperatures to these, so check with the plant supplier for the correct temperatures for the variety being grown.

Installation Costs

Material costs depend on the sizes etc, a full installation to fit in a 2000 square metre greenhouse will cost from \$110,000 + GST with out the greenhouse or heat pump.

The hydroponic gully in 6 metre lengths costs \$5.25 + GST per metre for the 100 x 50mm and \$12.10 + GST per metre for the 150 x 75mm gully, this includes free delivery to site in New Zealand for bulk quantities.

We offer a free design and costing service with ongoing advice and materials at very competitive prices. If you have any queries or think you would like to try Hydroponics, please contact us one of the following ways:

Phone **07 883 1051**

E-mail – **stocker@xtra.co.nz**

Website – **www.hydroponics.co.nz**