



STOCKER HORTICULTURAL & HYDROPONIC SUPPLIES (2004) LTD

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Hydroponic Lettuce and Watercress Production

Lettuce and Watercress are both grown in a very similar system; the preferred system is NFT (Nutrient Film Technique). The NFT system uses sliding gullies inside a structure.

Gullies are made using the 100 x 50mm rectangular hydroponic channel with a flat base, do not use round pipes, as the true film of nutrient cannot be achieved.

Sliding gully systems are usually inside a structure, and have gullies custom manufactured to fit the structure size. More plants per square metre can be fitted into this area compared to the old fixed bench system.

Seeds are germinated in a sterile media such as Vacroc Rockwool blocks, or in grow pots, again in a sterile media such as Perlite, Vermiculite, Sterile Pumice or mixtures of these. Flood and drain trays are usually used for propagation, with horticultural lighting for consistent production year round.

The seedlings from propagation are placed into the gullies at one end of the system, and progress down the system, moved manually each time plants are harvested, until they reach full size.

Feed and return pipes are sized according to the number of benches and flow rate required. Tank and pump size are also determined by the number of gullies and head required to reach the highest point.

NFT systems require nutrient to circulate 24 hours per day.

Propagation to End Product

Seed germination is done in two stages. The first stage is in Flood and Drain tables preferably under grow lights. You would leave the plants here for up to a week with just water in the tank. Then the young seedlings would be moved out to another flood and drain table at the end of the greenhouse. They would be left here for a further one to two weeks nutrient to feed them. Once they have been transferred to the sliding gullies, they will be fed nutrient at the optimum strength and pH. The strength and formula will vary according to crop type, local temperatures and time of year.

The time from germination to maturity varies with temperature, time of year and crop type, but ranges from 21 to 50 days.



Nutrients

There are several types of nutrient mixes designed for Iceberg lettuce, Fancy lettuce and watercress, with summer and winter formulations available where necessary. Nutrient Formula mixes can be blended to suit your water supply and crop type and are given a special mix code. A copy of your water analysis or a sample of water for analysis is necessary for these customised mixes, with no extra charge for this service.

Medias and Equipment

Suitable media for pots and plug production include:

Sterile pumice, 1 to 5mm in size, 60% Perlite mixed with 40% Vermiculite or coarse washed river sand.

Suitable pre made Vacroc Rockwool Blocks are ideal for lettuce and watercress, the size to use for these crops is the 25 x 25 x 40mm cube with straight sides (no taper).

Grow pots are available in either reusable (white) or disposable (green). Flat bottom trays with no holes in the base are available for reusable pots and Vacroc cubes. The disposable pots have a special carry tray to suit the flexible material.

Test and Control Equipment

It is advisable to have a fully automatic nutrient dosing system; it is also a good idea to have a heat pump. This will heat the nutrient in winter and cool it in summer for optimum growing conditions. Good airflow is essential for healthy plants, and temperatures over 30 degrees C must be avoided where possible.

Seed Varieties

There are literally hundreds of different types of plant varieties available, and it is essential to carry out trials of the many types to determine the varieties that suit your climate and market. Contact us for information and samples, and place orders through us to the major seed suppliers.

Installation Costs

Gullies are made to fit the bay sizes inside the structure, e.g. 6.5 metre long gullies for a 7.5 metre wide bay. Plants are planted into the gullies at the seedling end and each day they are moved down the bay until harvesting at the far end. Nutrient is fed down the gullies and returns to the tank via a water catchment system.

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 when ordered in bulk quantity and includes free delivery to site in New Zealand.

Pumps start from \$270 to \$2500 for suitable non-toxic plastic and stainless steel units, rated for continuous running. This is essential for the NFT systems, as pumps must be reliable.

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**

