# Aqua-Hort® Clean

**Aqua-Hort and heat treatment are two techniques which are being introduced in the preservation of horticulture and agricultural produce. Examples are such as: dipping of cuttings and washing of vegetable, to extend the shelf life and prevent disease attacks, like bacteria spots on carrots and potatoes.**

Research at the North Carolina State University has shown that Aqua-Hort provides an alternative to the washing of field crop vegetables instead of chlor washing. At the Aarslev State Research Station in Denmark it has been shown that dipping of Black Currant cuttings in "hot" water kills the gall mites sitting on the cuttings. There are today producers of ornamental plants cuttings who dip the cuttings in hot water before shipment.

The Aqua-Hort Clean has three functions:

- **Release of supercharged Cu ions, 0-20 ppm**
- **Electromagnetic treatment**
- **Heat treatment up to 42 degree Celcius**


**Picture 1: Below pump and electric heater. Second row Aqua-Hort electrode. Third row electromagnet and flow meter**

The produce is placed in a suitable tank filled with water. The Aqua-Hort Clean unit sucks water from the tank, treat it and returns it to the tank.

The desired temperature is set with a termostate. The wanted ppm of Aqua-Hort ions added is set on the display of the controls.

# Aqua-Hort® Clean

Aqua-Hort can supply tanks of different sizes. For the treatment of cuttings will a one by one meter tank which is half a meter deep often serve the purpose. Such a tank is isolated and supplied with a top for preservation of heat during off hours. For large scale vegetable produce like carrots or tomatoes the tank will most likely be a reservoir where the produce “swims” through.

A tank suitable for dipping of cuttings is shown below.

The three functions of the Aqua-Hort Clean acts in the following manner:

The heat treatment “chocks” the plant tissue which provokes the formation of stress hormons. These hormons acts against bacteria and fungus which attacks the harvested crop. Also it can kill bearers of pests like larvae and eggs. By that mechanism is the shelf life extended. The length of treatment in time and temperature is depending on the type of tissue. In cuttings are often spoken about 10 minutes by 40 degrees of celcius. Example: Treatment of Gall Mites on Black Currant cuttings. Above 48 degrees Celsius will most plant tissue be destroyed.

The supercharged Aqua-Hort ions are positively charged. They attract negatively charged particles like spores of fungus and bacteria, and penetrate the spore surface and inactive it. Example: Killing of Coli bacteria stemming from surface irrigation water.

The electromagnetic treatment increases the charge of the copper ions. It also decreases the surface tension of the water. Capacities: Pump 750 Watt 4-5 cubic/hour. Aqua-Hort electrode 2,5 amp 24 Volt or 5 amp 12 Volt, 1 meter electrode. Heater 3 phase, 400 Volt 9 kW.

Aksel de Lasson

Aqua-Hort