

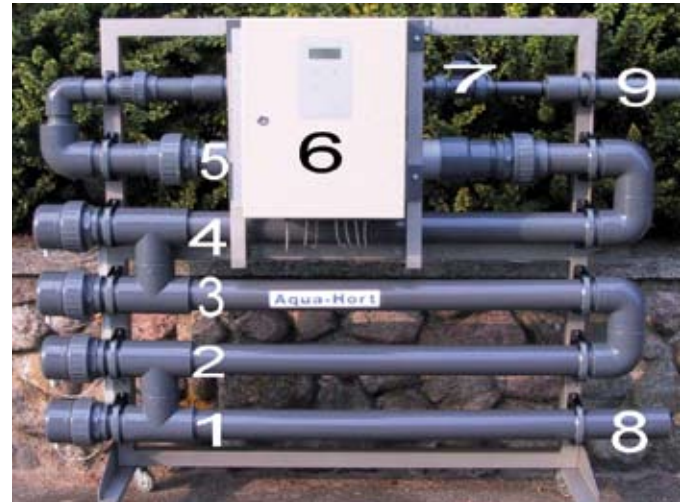
# Water magnetiser is promising for cut roses

*Just as in the medical world of humans, also for plants there are a number of alternative medicines or solutions. One of them is the water magnetising and copper enriching Aqua Hort. In pot plants it seems to work, now it is also used in cut roses. The first experiences in Kenya and New Zealand are positive.*

By Uko Reinders

The Aqua Hort looks simple with a number of pipes above each other, through which the irrigation water passes. In these pipes the water receives free copper ions and it gets a very small electrical load. The copper is added through a series of copper staves or electrodes. By varying the power on these staves at a control box, the dosage of free

copper is regulated. And an electromagnet gives the water an increased electrical charge. According to the Danish inventor of the device, Aksel de Lasson, the electrical charge removes the hydrate layers of ions in the water which makes them smaller and therefore easier to move through plants. "The increased absorption of feeding elements means



The Aqua Hort looks simple and is in fact a simple device. But it is not so easy to get a scientific explanation for the good results of the positive effects this device has on plant growth. (1, 2, 3, 4: electrodes; 5: electromagnet; 6: control box; 7: flow meter, 8: water inlet, 9: water outlet)

increased growth. The copper will make plants stronger, improve the plants' resistance to diseases and for many plants it gives nicer and whiter roots," says the inventor. According to de Lasson, the copper ions also kill fungal spores in the water from Pythium and Phytopthera. He claims that the device also works against diseases such as Agrobacterium, Erwinia, Xanthonomas, Clavibacteria Ralstonia and Ramorum.

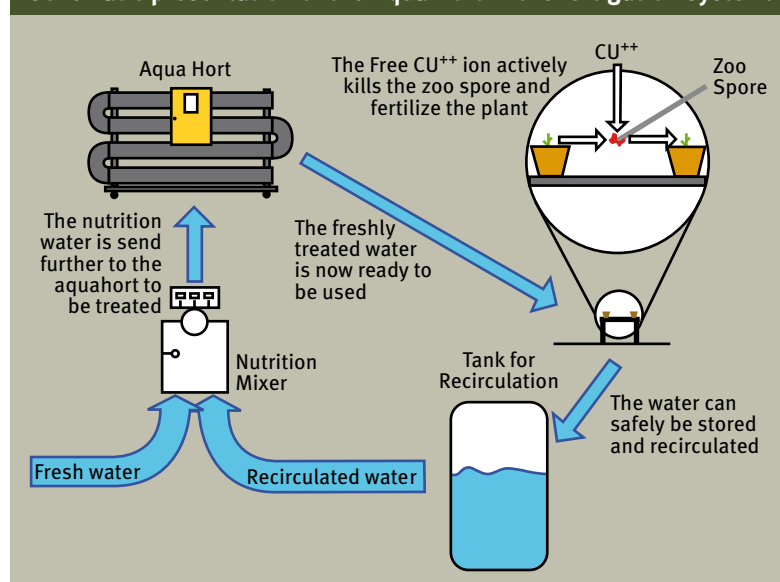
Once the Aqua Hort is installed it doesn't need a lot of attention. At first the concentration of free copper ions has to be adjusted and every four years the copper staves have to be replaced. There are different Aqua Hort units for sale with capacities ranging from a supply of 5 m<sup>3</sup> water per hour to 130 m<sup>3</sup> per hour.

## No scientific proof

Despite the persuasiveness of de Lasson about the advantages of the Aqua Hort, real scientific proof of how the benefits are obtained is lacking, just like alternative medicines and therapies for humans. But just as a number of these medicines and therapies, the Aqua Hort has also proven its benefits in practice. The best proof is the 450 devices which have been sold all over the world.

Looking at the list of nurseries with an Aqua Hort, it is remarkable that the device is mostly used for pot plants. De Lasson says, "This is due to advice in the Netherlands, which in my opinion is ungrounded." Despite the negative advice, the Dane didn't stop his attempts to introduce the Aqua Hort in cut flowers. In fact, this year the

## Schematic presentation of the Aqua Hort in the fertigation system.



## Rose grower in Kenya encounters advantages

One of the rose growers in Kenya who uses the Aqua Hort is Jan Molenaar from Tsara Rozen in Limuru. The main varieties on his nursery, which he took over in 2006, are Mariyo!, Marie Angelo! and Golden Claire! The roses are cultivated in pots with a substrate mixture of coco peat and volcanic material. Molenaar installed the Aqua Hort during April this year; the device is connected to 1.5 ha of his total 7.5 ha rose area.

The first experiences of Molenaar are positive. "I see that it really works," he says. Moreover, the device is easy to operate. "After putting a plug in the wall socket it works. And at the beginning we adjusted the copper content in the water."

One thing the grower is enthusiastic about is the effect on the roots. To find out the effect he took out some plants and put the roots on a scale. "What I found was that the Aqua Hort increased the weight of the roots by 40% to 60%, which is due to an increase number of hair roots." Molenaar is not certain about the reason for this increase. "My impression is that the root zone is kept more free from pathogens and therefore root growth is less hindered. The roots look very clean too, which underlines this theory."

Another change Molenaar observed after installing the Aqua Hort was the reduced pressure of Agro bacterium. "But it can't stop



*The rose plant on the right received water through the Aqua Hort, while this was not the case for the plant on the left. The difference is clearly visible.*

this stubborn disease, which is widely spread in Kenya through the commonly used root-stock 'Natal Briar'," he says.

Another problem which has been reduced because of the Aqua Hort is red spider mite. "Plants seem to increase their resistance against this pest because they have become healthier." Whether the Aqua Hort also has a positive effect on the pressure of downy mildew and botrytis, Molenaar cannot really say. "Looking at the usage of fungicide I think it does have an effect, but I want to see what happens in the next rainy season to make a good judgement."

Before installing the Aqua Hort, Molenaar

was not completely sure of whether plants could get poisoned, since the copper dose will be higher. But he didn't see any problems. "It looks as if the plants only take in what they need. And the balance has its disinfecting effect and is drained out."

The main advantage of the Aqua Hort, according to Molenaar, is the increased production and quality of his roses. "The number of stems is higher, the stems are longer and the bud is slightly bigger. I have estimated that the exported weight is increased from 6 kg/m<sup>2</sup> to 6.5 kg/m<sup>2</sup>/year."

An increased weight also means increased transport costs, but according to Molenaar he also gets higher prices for his roses. I have estimated that these higher prices will lead to a return of investment time of about two years." At present, Molenaar is doing trials to benefit more from the Aqua Hort and to reduce the return time of investment to half a year. "This I want to achieve by reducing the EC value through reducing the giving of fertilisers by 30%, which really counts these days because of high fertiliser costs."

Without awaiting the result of the trials, Molenaar has decided on a further investment in the Aqua Hort. At the beginning of next year he is going to spend about €25,000, to get magnetised and copper enriched water on his whole nursery.

system is introduced in cut roses in Kenya and New Zealand, after a set of trials. Those tests show good results, just as in the pot plants. The stem production was increased by 11%. The stems were 7% longer and the leaves were 6% wider and as a result of this stems increased 7,4% in weight. The buds became slightly (3%) higher. The vase life was the same as untreated flowers but according to de Lasson, the treated flowers opened more fully and one day earlier. So, just as in pot plants also in the cut flowers the Aqua Hort seems to work, which is endorsed by the experiences of two growers. (see Boxes). ■

## Less problems with powdery mildew at nursery in New Zealand

A flower nursery in New Zealand who invested in the Aqua Hort is Van Lier Nurseries in Auckland. The total area is 2.2 ha; 1.4 ha is planted with roses in pumice and 0.8 ha with carnations. The introduction of the Aqua Hort on the nursery, in March 2007, came along with the introduction of the recirculation of irrigation water. "This was due to the regulations on water usage which didn't allow water to be dumped anymore," owner The van Lier explains.

To clean the water, Van Lier at first bought a UV installation. "While I was looking for an ozone installation for our other location with 5,000 m<sup>2</sup> roses, someone told me about the Aqua Hort. After I approached a grower of bedding plants who uses the system and told me it worked great, I decided to buy it. What also attracted me was that the system is one of the cheapest options to purify water and it is easy to use." Just as the growers of bedding plants, also Van Lier is enthusiastic about the Aqua Hort. "The crop is growing well and looks healthier than before. We spray less, for example against powdery mildew. Powdery mildew used to be a big problem, but now at least it is controllable." According to Van Lier, also the roots grow well. "When I pull out weeds I am amazed at the size of their roots, so I am sure that also the roots of the roses are bigger."

Whether there is a difference with UV treatment he uses in another part of the nursery, Van Lier cannot say. "The results in the greenhouses with the UV installation are also good. Still I believe the Aqua Hort works better, since it 'cleans' all parts of the irrigation system, such as dirty pipes, while the UV only disinfects the water on one spot."