Broere
HORTITECH B.V.

Drip Irrigation

Off Grid Installation

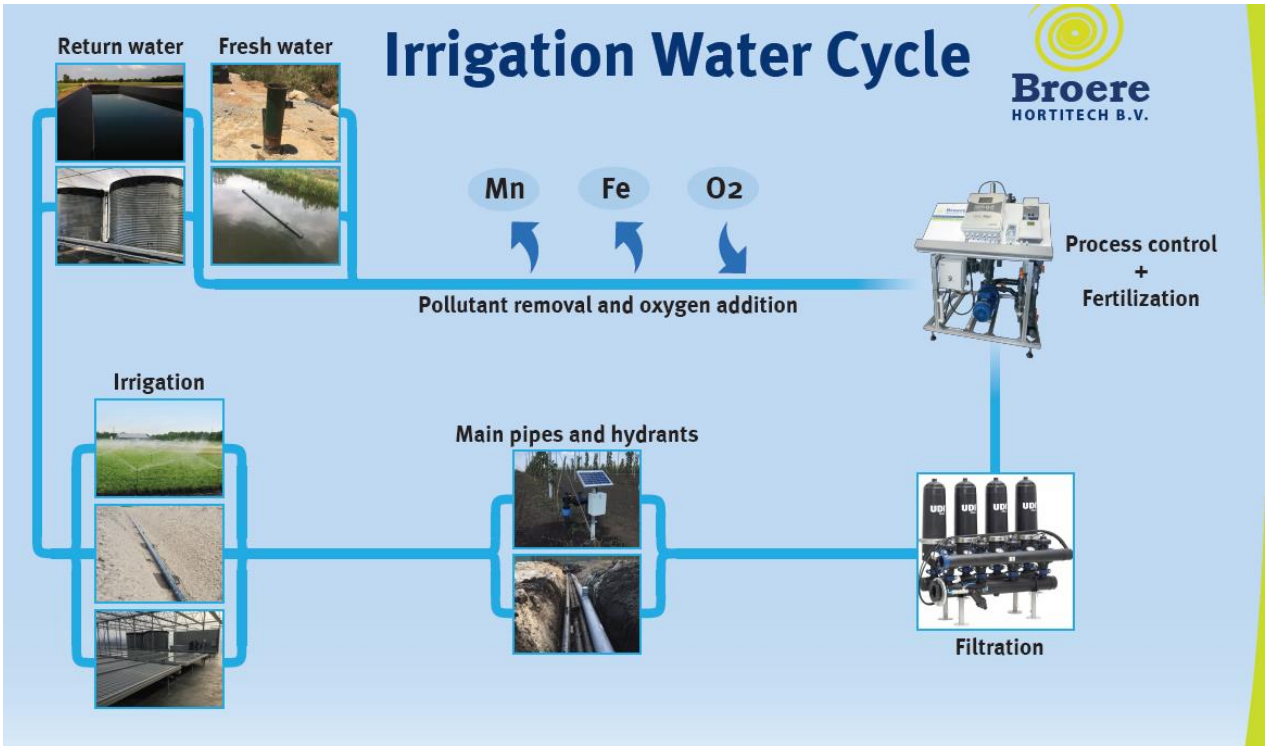
Water Management

We enjoy the power of water

Catalog

www.broereberegening.nl

Contents



Broere Hortitech: Your partner in irrigation

Broere Hortitech has been active since 1992 as an expert in the field of irrigation in the treegrowers area of Boskoop, The Netherlands. We work with a group of enthusiastic employees who are work on the latest techniques and methods in our field. In addition, Broere Hortitech is highly involved with society and the environment about which you can read more in the chapter on Corporate Social Responsibility, our CSR policy.

We do not only apply the expertise we have built up over the years to the irrigation of outdoor crops and horticulture, greenhouses, riding schools and sports fields, but also to ornamental gardens for private individuals. We do not only focus on the sale of irrigation products, but also on the preliminary process, construction and maintenance of your irrigation system

Our activities:
Our roots lie in the tree cultivation and we carry out tree nursery related outdoor cultivation projects at home and abroad. These projects vary from hydropnic cultivation in the Netherlands to advanced cultivation floors in China and smart water management systems in Lebanon.

Sales and Advice:
The webshop of Broere Hortitech offers you a large range of irrigation products of high quality at competitive prices. You can order ready-made packages from us or you can purchase separate parts. If you know little about sprinkling, we can help you on your way to compiling an order.

We can provide you with a watering plan:
In the preliminary phase you can use our knowledge and experience to create a watering plan. We recommend contacting us especially for large irrigation projects. We can draw up a comprehensive irrigation plan for you, so that your soil is irrigated efficiently.

Hire technicians for construction and maintenance:
With a team of experienced and motivated employees, we can take care of the construction and maintenance of your irrigation system, We take care of your work and you are sure that your new installation is installed correctly and continues to function properly.

Pick up warehouse:
Do you want to pick something up quickly? Do you have a question? Then visit our collection warehouse in Waddinxveen. The warehouse is open from monday till friday from 7:00 am to 5:00 pm. We have a large stock of professional irrigation products, both PE and PVC, in the specific sizes 12-16-20-25-32-40-50-63-75-90-110-125-160-200mm as well as a large assortment of collar sleeves and flanges but also sprinklers, electric taps, PE hoses and different types of cables.

for questions call +31 (0) 182-394496 or mail to info@broereberegening.nl

Broere Hortitech B.V.


Arie-Jan & Dirkje Broere

Water Harvesting, *A DWS initiative*

The Dynamic Water System (DWS) is a complete and customized solution for the storage and supply of fresh water in agriculture, horticulture and the industrial sector. The use of DWS enables to generate optimal crop yields and to reduce crop diseases. The strength of DWS is that it provides water at exactly the right moment. Generally, the total amount of rain over the year is sufficient, but most of the time, there is a mismatch between the moment of supply and the moment of demand. With the application of the triad 'Collection, Storage and Use' water is made available for the moment of need, thus increasing the water availability at the critical periods for the crop growth or industrial processes.

Additionally, the water retention and storage are designed so that the water can be purified and the risk of crop diseases is strongly reduced. Fresh water can be retrieved even in saline surroundings and the water supply can be tuned towards precision farming, improving the quality and the yield of the crops. We use scalable components which can be combined in a unique way. Thereby, water use is optimized to obtain optimal business results.
Dynamic Water Systems provides customized solutions with an excellent service in both implementation and aftersales. Combining expert knowledge and location specific consultancy results, we can create a system that completely meets your desires and the local opportunities. By providing customized products and services, there is a suitable solution for every customer.

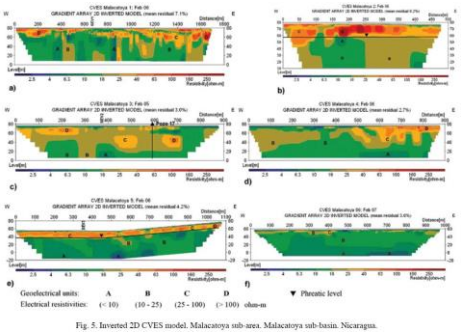


Fig. 5. Inverted 2D CVES model. Malacatoya sub-area. Malacatoya sub-basin. Nicaragua.

Dynamic Water Systems (DWS)

DWS is a brand name for acacia water and Broere Hortitech. DWS realizes water harvesting and making water available.

Selection of water.

During the winter period, larger volumes of water are often available locally, and these are pumped to the brine water in bulk. Our expertise focuses on rainwater from the greenhouse roof, mountain stream water and drainage in sandy and clay soil. Each water type has specific properties. The greenhouse water is the simplest and the clay water demands the most attention. Water from the arable plots is assessed on EC value. If this is lower than the set value then the water is filtered and made suitable for underground storage.

Filtration of the water.

Each region has specific characteristics, in particular the size and viscosity of the contaminants in the water. These factors determine the design of the filtration system. This can consist of a sand filter in combination with a ring filter.

Suitability of the surface.

Hydrological properties of the soil are different everywhere. In order to assess whether an underground storage is possible, an investigation must be carried out by means of a CVES measurement. For this we work together with Acacia Water which is a global specialist in groundwater and hydrology.

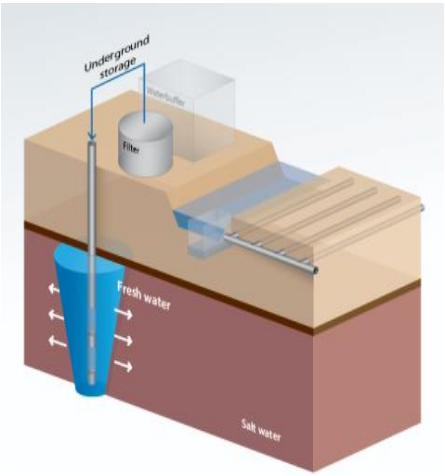
Size of a storage.

Hydrological properties determine whether the water remains around the infiltration source and how quickly it will move underground. Although this is often a minimal distance and has no further influence, it is a factor to take into account.

Residence time in the ground.

By separating infiltration and extraction you can realize a guaranteed residence time in the subsoil. Because of this guaranteed residence time, specific degradation processes can take place which can prevent diseases.

Water Storage – Underground

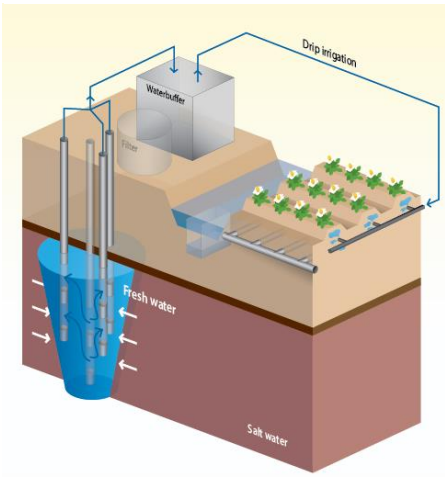


Storage

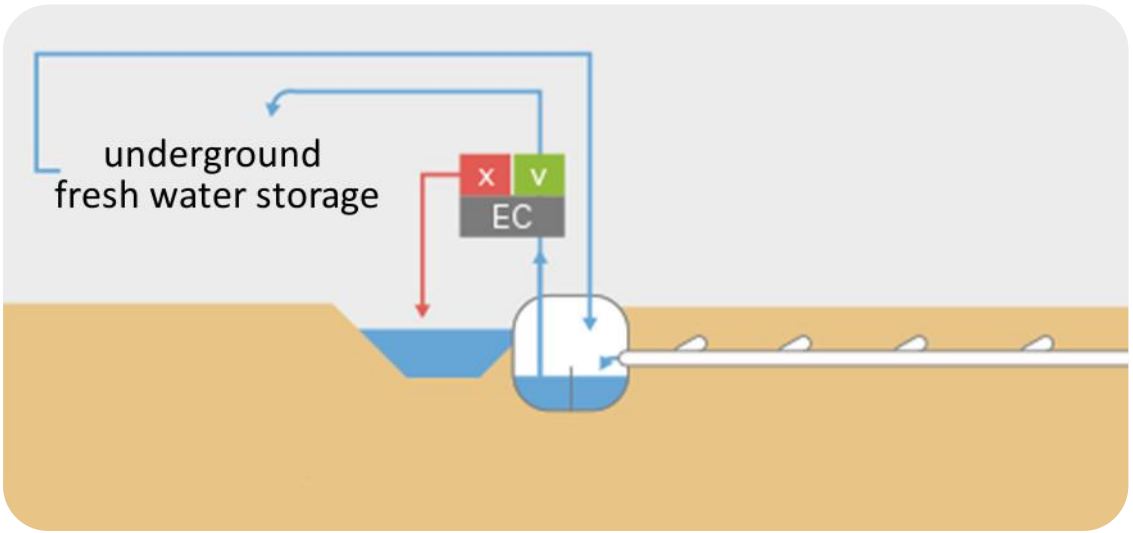
Periods of water shortages take place more often and are often of longer duration. In order to bridge the period from abundance of water to scarcity, water is collected during the wet periods and stored. Depending on the location, the water is stored underground or in a rainwater basin. If desired, this can be combined with inundation or infiltration.

Underground storage can be implemented in several variants:

The ***single variant*** has a combined infiltration and extraction well. The freshwater bubble is created at an optimum depth, often at a depth of 10 to 30 meters, deeper is also possible. The collected fresh water is infiltrated in the middle of the bubble, where the salty or brackish water is pushed away. In the period of water demand the water is extracted from this bubble



The ***multiple variant*** is in addition to storing and reclaiming freshwater aimed at minimizing germs. This variant uses multiple wells, of which at least one infiltration well and one withdrawal well. Depending on the local situation, multiple wells may be necessary. The specific setup creates a 'soil passage' where the water flows through the soil from infiltration to extraction well. The soil passage is used for the decomposition of germs in the water



Water Storage – Basins

Desired size

The volume to be stored is very much company bound and dependent on the wishes of the local authorities. Depending on your cultivation, 10 to 120m³ of water evaporates per hectare per day. Based on an average situation in a tree nursery, 70m³ of water will evaporate per hectare per day on an outdoor plot. If we want to cover a period of 6 weeks, 2940m³ per hectare of storage capacity will be needed. Overall, the evaporation in greenhouses is about half of an outside field, in a shadowhall, depending on the type of screen, this is 25% to 75% of an outside situation.

Building dikes

Because the construction of dikes is specialized work, we work with a team of professional subcontractors who regularly carry out this work for us.

Drainage / Degassing

Basins are generally dug to about 1 to 3 meters below ground level. Depending on the groundwater level, a drainage system is necessary. In peatlands, the drainage will be constructed in such a way that it also acts as degassing. In situations where there is groundwater under the basin, measures will have to be taken to drain the soil gas.

Protection foil against solar radiation

Sunlight is very aging for all plastics. Therefore, it is desirable to protect the film from sunlight. We do this by applying a slope cloth of> 200 grams / m². This hangs in the basin up to about 75cm from the bottom. At the lowest point of the slope covering, a tile seam is applied, in which we apply street tiles. This prevents the slope being susceptible to the wind during a storm.

Water Storage – Silos

Introduction
Silos are in many places a desirable and the most suitable solution for storing water. Simple in realization, a limited construction time and available in different sizes.

Silo Realization
The place where the silo is placed must be clear of obstacles and sharp objects in the ground. If the silo is placed on a concrete floor, it must be sufficiently load-bearing. The bottom and the inside of the silo are provided with a protective blanket. The silo lining is then applied and secured over the edge by means of a stainless steel cable and tension ratchet. The silo liner is toxic neutral and is suitable for irrigation water with additives such as recirculation water. Possible transits are applied in the bottom of the silo lining. During the assembly of the silo lining, it must be at least 10°C in connection with the vulnerability of the silo lining.

Placement: This can be done in the ground or anchored to a load-bearing concrete floor.

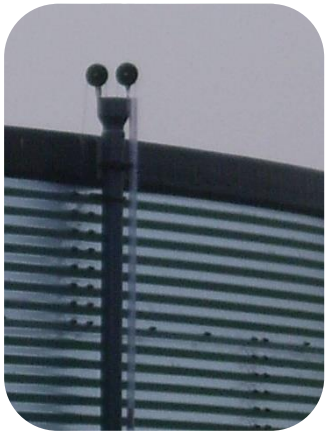
Diameter silo (mtr.): Varies from 1.82 to 30.95 meters.

Height of silo (mtr.): 1.59 / 2.36 / 3.12 / 4.64 / 5.37 meters. The silos with a larger diameter have a limited height.

Gross content silo (m^3): 4m^3 to 1795m^3

Silo coatings: No coating, only the bottom ring, possibly entire silo.

Canopy: This is optional and can be realized up to a height of 6.5 meters.



Pre Water Treatment

Pre Water Treatment is the process of water treatment that makes water more suitable for a specific end-use. Water treatment removes contaminants and unwanted components, or reduces their concentration so that the water becomes suitable for the desired end use.

Standards

The standards for iron in irrigation water vary according to the irrigation system and the crop. As drinking water for animals, the limit is lower for pigs than for cattle. It also depends on the content of bicarbonate in the water, because this influences the behavior of iron.

In general, the following standards are used:
- Cleaning milking machines and milk tank: Fe <0,2mg / l
- Drinking water for animals: Fe between 0.2 - 5mg / l
- Irrigation water: spray nozzle start to clogg when Fe > 1mg / l

In addition to iron, manganese regularly occurs in spring water. This can be removed in the same installation as iron. However, the primary process is removing iron. The deferrization must already be at an advanced stage before the removal can take place. An effective way to remove manganese from source water is by means of aeration, which oxidizes the manganese.

pH-value

pH value is the balance of the alkaline and acid content of the feed water. This is measured in sizes from 1 to 14, where 7 is theoretically neutral. For a good nutrient intake, the pH value must be between 5.5 and 6.2. In Hortigreen mixers, the pH value can be continuously measured.

Fertigation mixers - Hortigreen Mixers

The heart of a well-functioning irrigation system is a pump unit. Hortigreen mixers are high quality pump units suitable for every application. There are a number of standard models of Hortigreen mixers in production and there are also custom built Hortigreen mixers. Hortigreen mixers are easy to operate and have a durable aluminum frame. There are standard models of Hortigreen mixers which can be distinguished in pumping power. Each Hortigreen mixer consists of a number of standard elements.

The pump

Without a pump a Hortigreen mixer is nothing. To guarantee quality, almost every Hortigreen mixer is equipped with a high quality Lowara pump from Italy. Lowara has proven that they produce solid pumps of high quality that last for years.

Hortigreen mixer 4m³/h

- Pump capacity of 4m³ per hour
- Easy to use
- Fast payback time
- Durable industrial aluminum frame
- Easy to operate from a smartphone
- Compact design matched to euro-pallet and block-pallet size
- Manual cleaning disk filter integrated (1½")
- Equipped with flowmeter
- 1.5 kW Pump
- 230 VAC 16 Ampere
- Pump circuit integrated
- standard 2 dosing lines

Hortigreen mixer 25m³/h (4kW)

- Pump capacity of 25m³ per hour / 3.3 bar
- Easy to use
- Fast payback time
- Durable industrial aluminum frame
- Easy to operate from a smartphone
- Compact design matched to block pallet size
- Automatic self-cleaning filter integrated
- Equipped with flowmeter
- 4 kW Lowara Pump
- 400 VAC 16
- standard 3 dosing lines
- Extensions possible

Fertigation Mixers - Hortigreen Mixers

Hortigreen mixer 40m³/h (7.5kW)

- Pumping power of 40m³ per hour at 4 bar (7.5kW)
- Pump capacity of 40m³/h at 3.5 bar (5.5kW)
- Easy to use
- Fast payback time
- Durable industrial aluminum frame
- Easy to operate from a smartphone
- Compact design matched to block pallet size
- Automatic self-cleaning filter integrated
- Equipped with flowmeter
- 5.5 kW Lowara Pump
- 400 VAC 16 Ampere
- Soft starter pump circuit
- standard 3 dosing lines
- Extension modules can be easily placed on the extra-large control panel

Hortigreen mixer 80m³/h (7.5kW, 9.2kW, 11kW, 15kW, 18.5kW)

- Pump capacity of 80m³
- Pressure depends on pump power
- Easy to use
- Fast payback time
- Durable industrial aluminum frame
- Easy to operate from a smartphone
- Compact design matched to block pallet size
- Automatic self-cleaning filter integrated
- Equipped with flowmeter
- Durable Lowara Pump
- 400 VAC 16, 25, 32, 40 Ampere
- Soft starter pump circuit
- standard 3 dosing lines
- Extension modules can be easily placed on the extra-large control panel

Hortigreen Custom build:

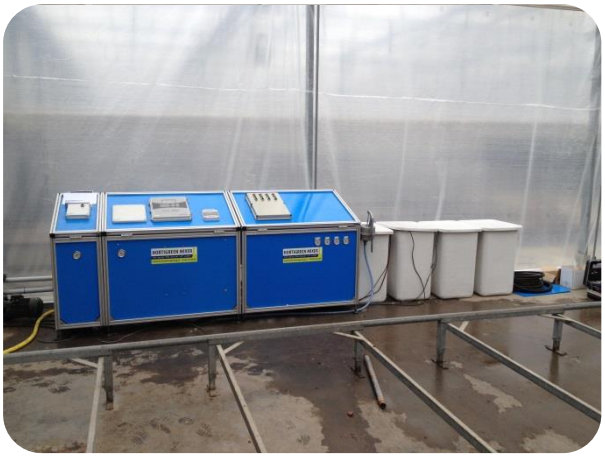
- Built to the wishes of the client
- Designed with 25 years of experience
- Filtration, dosing, flow measurement
- Easy to operate
- Can operate off-grid, or electrically on 110-230-400v

Fertigation Mixers - Hortigreen Mixers

Hortigreen Dosing mixer

Specifically developed for the Hydroponic cultivation of mini tubers and other crops, an aluminium frame with a pump, various dosing lines for injecting fertilizers, lye and acid. The unit is fully plated so that a sleek end product is realized. Pump circuit and control are also integrated. Optionally, liter counters can be placed on the main stream and the dosing lines.

- Addition to your existing pump set
- Durable and compact aluminum frame
- Standardized design and maintenance
- Easy to use
- 2 to 5 Dosing lines
- EC & PH measurement
- Filter integrated for manual cleaning (1½'')
- pressure reducing valve with pressure gauge
- Quick to assemble and commission



Hortigreen Drainpit

- Durable polyester pit
- Pit is prefabricated including pump and piping
- Drainselection on EC measurements
- Standardized design
- Capacity from 5m³ to 150m³/h
- In combination with large control box for easy operation
- Placement and commisioning in 1 day
- Optional: an adjustable water level to create a freshwater lens

Hortigreen Filter Unit

A steel/aluminum frame with a filtration system on top, consisting of a filter combination that suits your situation best. Our decades of experience with surface water have resulted in very successful designs.

Solar Irrigation

Hortigreen Solar Mobile Irrigation is the newest pump system from Broere Hortitech. Hortigreen Solar Mobile Irrigation is designed to combine the best of two worlds, namely; durability and convenience. The system is built on a trailer so that the system can be easily moved to a new location without any problem. We also upgraded the system to roll out the solar panels making it easy to install by just one person!

The advantage of this system is that it generates the most energy when energy is needed, namely when the sun is shining. When the sun shines the plants evaporate much water, so there is a high water demand which can be fullfilled by the system. When it is cold and cloudy, plants need less water and the panels also provide less energy. The perfect alignment!

We have 4 different Hortigreen Solar Mobile Irrigation systems available at the moment:

1. Solar unit 4 panels. Capacity: 2m^3 an hour
2. Solar unit 8 panels. Capacity: 4m^3 an hour
3. Solar unit 18 panels. Capacity: 10-12m^3 an hour
4. Solar unit 21 panels. Capacity: 16m^3 an hour

All units are mobile as shown on the picture. Each unit can be equipped with a controller for automated irrigation. The controller will be powered by a battery to ensure it will always be up and running even on a cloudy day. The 3rd system with 18 panels has a slightly smaller pump, so this system is also suitable for areas with slightly less sunlight (like the Netherlands).

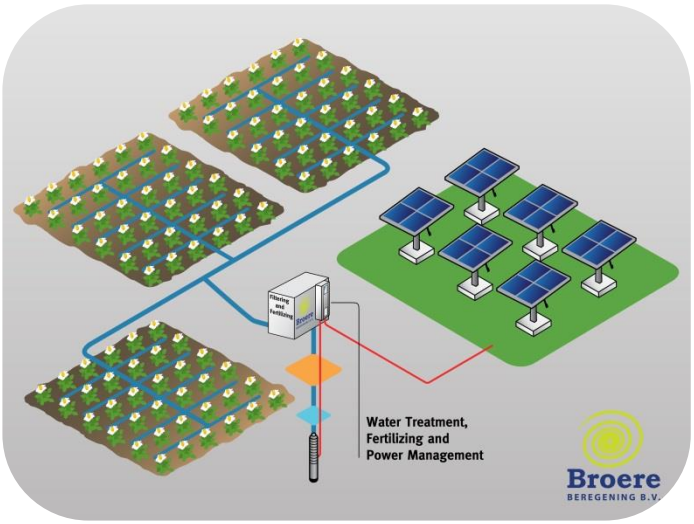
Dosing of fertilizers can be done with different types of dosing pumps.

Besides our standard systems we can also fabricate custom made solutions based on:
• Number of panels tailored to your desired or present pump.
• A solar tracker can be installed which rotates with the sun. This system has a higher efficiency.
• Depending on your location, the design can be adjusted to local wishes.
• Pump capacity from 2 to 1000m3 per day 5 - 150 mwk. (about 0.5 - 15bar). Bigger capacities are combined with fixed systems.

Each Solar Mobile Irrigation system is or can be equipped with:
• Control equipment that works on a stand-alone solar panel in combination with a battery.
• Control equipment and log file which is always accessible via the internet (within mobile network range)
• Pumps specially designed for solar energy. These pumps can be connected directly to direct current or with an inverter on alternating current.

Solar Irrigation

We Have different types of solar solutions, We can go from 1 till 21 panels, depending on your needs. Hereby some examples of the solar solutions that we supply.



Hortigreen Containers

Hortigreen containers are its fertigation units built specificly to a certain container size. This arrangement is useful when there is no room to place a Hortigreen mixer under cover. The containers are easy to move after a cultivation round to the field where the next crop will take place. There are two types of containers available. Both containers can be supplied with power by means of solar power, a diesel aggregate or a power connection. The control equipment is powered by a small solar panel on the roof of the container. In combination with a battery, this panel ensures that the container is accessible day and night through the internet.

Hortigreen well container

The Hortigreen Source Container is designed for use in combination with a well. The pipes, measurement equipment and filtration are on the walls of the container leaving space in the middle to store equipment. Each container is equipped with an automatic filter, two fertilizer lines to add nutrients, an advanced controller with optional EC & pH measurement.

Hortigreen Ditch Container

The Hortigreen Container is very similar to the Hortigreen Source Container. The Hortigreen Container is specially designed so that water can be sucked in from a ditch by means of a floater filter. The container is equipped with a Lowara pump, an automatic filter, two fertilizer lines to add nutrients, an advanced controller with optional EC & pH measurement. As with the Hortigreen source container, the Hortigreen container has storage space available to store cultivation supplies.

Fertigation Mixer – Filtration

Filtration is probably the most important part of any irrigation installation and is often overlooked. Without Filtration an irrigation system often has a significantly shorter life span than with filtration.

Pre-filtration

Pre-filtration means that the water is already filtered before it enters the pump. This can be done by a perforated floating suction pipe.

Mixer filtration

Filtration in the pump unit is called mixer filtration. This occurs in many types and sizes that are discussed below.

Valves section filtration

Valves section filtration takes place at the valve section. After the valves there is a manual filter in the supply line that removes the last dirt particles from the supply.

Steel filter

Steel filters are used when the source is clean or when the water supply is minimally contaminated.

Automatic screen cleaning filter

Automatic filters are very similar to steel filters. The difference is that there is a powerful water jet on the inside of the filter element to clean the filter every other time so it no longer has to be done manually.

Disc filter

The ring filter is the most advanced filter in the range. Its operation is similar to that of a steel filter but requires much less attention and rinsing water.

Sand filter

The sand filter is the most reliable and solid solution of filtering. The disadvantages are that the filters are large and cumbersome.

Paper filter

Paper filtration is a form of filtration in which the water is pressed through the paper, similar to a filter coffee machine. The paper ensures that the dirt remains behind. Using this technique it is possible to filter up to 10 microns.

Membrane filter

Membrane filters use reverse osmosis (=the process to purify water) and can filter the water up to 5 microns.

Management Systems – NMC Radionet™

NMC Radionet™

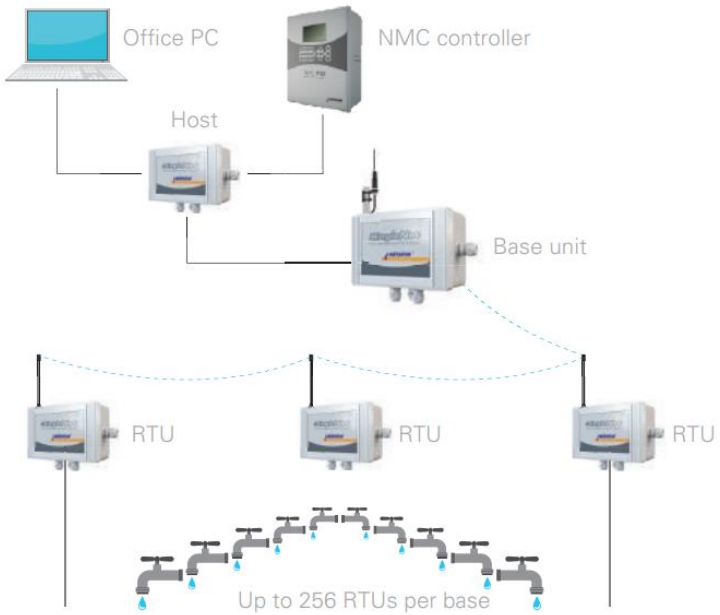
NMC Radionet™ is Netafim's wireless control system that significantly reduces cabling costs. With NMC Radionet™ it is easy to create a wireless network in any environment to control and read out digital signals.

Reliability thanks to 2-way communication

NMC Radionet™ works on the basis of 2-way communication. Every transmitted signal is encrypted and checked for accuracy upon receipt. The status and functioning of each field unit (RTU) can be checked from the central 'host'. This makes NMC Radionet™ extremely reliable. Each receiver can also act as a support transmitter, allowing large distances between transmitter and receiver.

Flexible

Radionet™ is modular and can easily be extended with additional receivers and additional controls per receiver. This allows an existing system to grow with future requirements. A maximum of 256 RTU's (2286 outputs) can be included in 1 system. Radionet™ is extremely flexible and can be used in a large number of existing systems, with computer, automatic and/or PLC controls.



Management Systems – NMC Netbeat™

NMC Netbeat™

NetBeat™ is the first digital farming solution to enable automated irrigation, fertigation and crop protection. Combining everything into one closed-loop platform, NetBeat™ lets you easily monitor, analyze and control your irrigation from wherever you are.

- A full model that simulates natural habitats, calculating biomass, yield and water productivity.
- A dynamic model that improves its predictions and recommendations based on real-time data and weather forecasts.
- Requires minimal parameters for setup by the farmer.
- Produces accurate yet simple 7-day irrigation plans to input into your irrigation controller.
- Based on real-field data that is analyzed and processed by Netafim's leading agronomists.

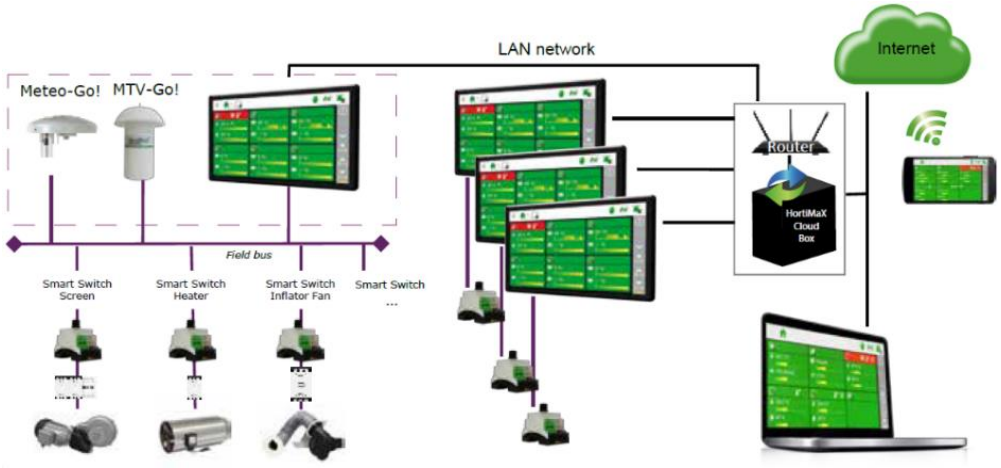
Management Systems - Ridder

We have been working with Ridder since 1994 (Formerly Hortimax, formerly Van Vliet) and many applications of Ridder in the outdoor irrigation that were installed years ago are still used daily. Now that Ridder no longer has its focus exclusively on "high-end" greenhouse horticulture and has adjusted its product range, Ridder is once again closer to the wishes of our outdoor irrigation customers. The wide range and the long history of the Ridder products means that they are a suitable solution for the end user in many locations.

RIDDER
Helping you grow your way

Hortimax Go!

Broere Hortitech is an OEM dealer of the HortiMaX-Go! This enables us to place both the controller and also the smartswitches in our own housing which is suitable for outdoor crops cultivation.



The HortiMaX-Go! advantages:

- *Affordable: Tailormade, you only need to pay for the installed components*
- *Easy to operate: the touchscreen is easy and intuitive in usage.*
- *Both water and climate: One controller for all* needs.
- Communication: there is a constant communication between controller and smartswitches. Enabling the controller to know if a smartswitch is turned off or defective.
- Visible alarms: The controller even shows when a switch is in manual control.
- Multizone controller: One controller can control up to eight zones!
- Simple remote control: The remote control app even shows the same screen as the controller.
- Multiple controllers can be connected in one network. This way you can even make them share a network station.

Management Systems - Ridder

Broere Hortitech is an OEM dealer of the HortiMaX-Go!. This enables us to place both the controller and also the smartswitches in our own housing ready for outdoor crops. We have chosen a housing that is resistant to almost all climate conditions that we encounters at our customers worldwide. As shown on the picture below we placed the controller in a housing with a “double door”, this way the screen is not only protected against water, but also UV radiation from sunlight.

The housing for the smartswitches with control options, e.g. screening or ventilation motors, are not the standard HortiMaX housings. To ensure the best protection against water or humidity we have chosen a rugged housing with a door leading to the switches. Because the door panel is clear you always can see the switch and if it is turned on or off.

Not only the housings are not standard. The inside of each housing is different as well. We have chosen components that are proven durable and can comply with the high standard we want.

We are able to produce our own unique combinations of smartswitches for you specific situation. Giving you the best product against a reasonable price!

Hortimax App – HortiMaX-Go!:

It is possible to remotely check and/or control your HortiMaX-Go! On you smartphone or tablet. In one app you can monitor all controllers that are connected to your cloud environment. You can easlily switch between the controller you want. Off course you can give each controller it’s own name so you know exactly what the location of that specific controller is.
Because the screen in the app and on the controller are the same you can start straight away!

Management Systems - Hortigreen Valves and Sensors

Broere Hortitech is currently busy with the development of Hortigreen valves and sensors. This system is very effective when long distances have to be bridged using signal cables. Valves and sensors can be monitored and controlled using LoRa nodes which operate completely stand-alone. Each Node has a small solar panel and a battery to supply it with electricity. The irrigation controller sends a signal by wire to the LoRa base server which sends a wireless signal to the nodes in the field.

Using this systems is no different than using any other irrigation system in terms of controlling. The biggest difference is that it LoRa cuts down on wiring costs and increases realiability because it elimates the potential issue of signal cable getting damaged.

Several LoRa systems are currently nearing the end of their testing phases. Result show very promising results making us confident in selling this top of the line system. The effective range of the system is up to 10km from the base server making the system suitable for almost every large farm.

LoRa®

Open Field Crops – Overhead Irrigation

Overhead irrigation in open field cultivation is done with the use of telescopic riser pipes which are installed deep in the ground so the soil still can be plowed. The telescopes rise when water pressure is applied after which sprinklers can be installed. When the cultivation is done the pipes can be lowered again making it possible to plow again.

Naan 423WP and Rivulis S6000 sprinklers are used to cover large areas in open field cultivation. The 423WP is the top of the line sprinkler made out of brass, making it extremely durable. The rivulis S6000 is a similar sprinkler to the 423WP. The S6000 is made from plastic making it less durable, but it offers the same high uniformity as the 423WP. Because the S6000 is made from plastic it is also significantly cheaper than the 423WP, which is also susceptible to theft due to the high scrap brass prices. The Naan 423WP is available as a sector sprinkler as well as a full circle sprinkler. The S6000 is only available in a full circle model.

Open Field Crops – Surface Drip and Subsurface Drip Irrigation

Drip in line is the irrigation method to get the highest yield from every drop of water and from every hectare of arable land. With the right mix of nutrients for your cultivation, you can expect up to a doubling of your yields with a drip in line system. A drip in line system is often accompanied by accurate measurement systems which monitor the plot and the water. Our Hortigreen mixers are the perfect solution when it comes to collecting, analyzing and using data to achieve the maximum efficiency. There are several drip in line systems, each with a different characteristic. These systems are discussed below.

Surface Drip Irrigation - Cultivation Beds

When using surface drip irrigation, the drip lines are placed on top or several centimers under the soil. Most commonly beds of 150cm or 180cm are used in which, depending on soil type, 2 to 3 drip lines are placed between the crops. In this way, a uniform growth of the crops can be realized throughout the plot.

Drip lines can also be used to prevent night frost damage by moistening the soil. The moist soil prevents the air inbetween the crops from reaching the freezing point.

Surface Drip Irrigation – Ridge Cultivations

Drip irrigation in ridge cultivation a little different to bed cultivations. In between every second ridge the soil will not be removed creating a M-bed. In the middle of two ridges a dripline is placed fertigating two ridges. For this purpose thick-walled driplines are used which can be reused multiple times. For seed potatoes you can put the dripline in the top (3cm below) of the ridge, for this use we take the thinwall dripline 6-8-10mill. We work with different brands like Rivullis, Eurodrip and Netafim.

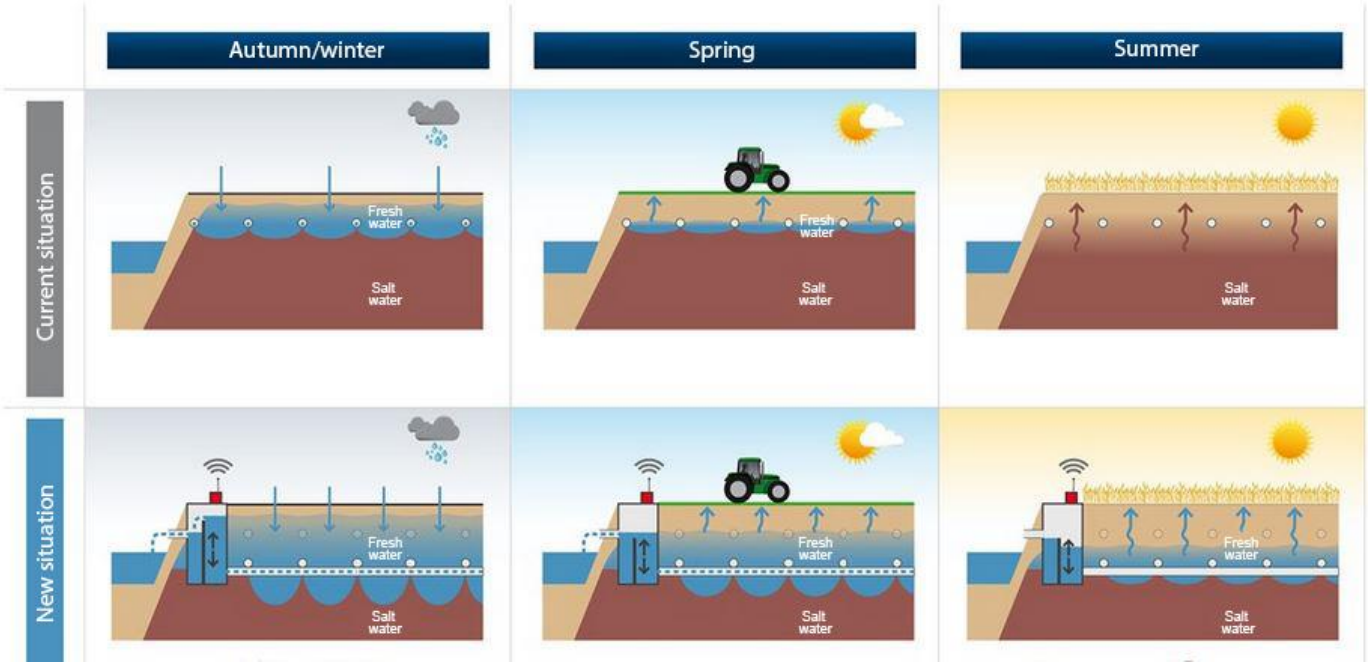
Subsurface Drip Irrigation

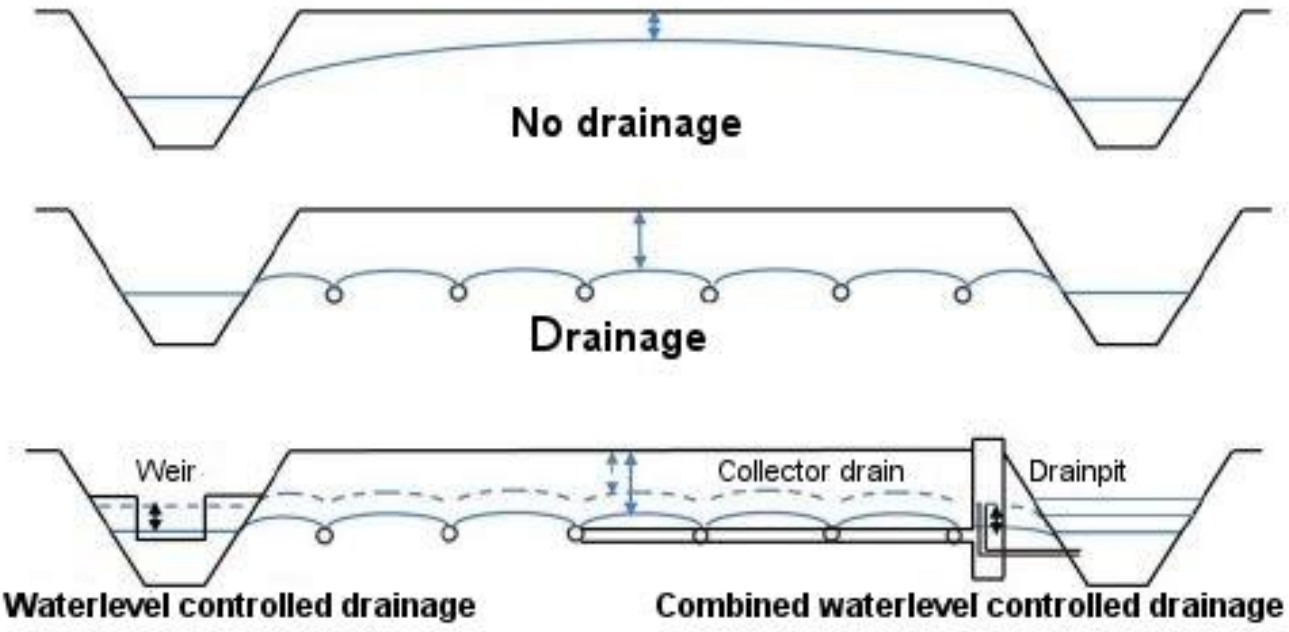
Driplines are located deeper (30-50cm) in the ground when using subsurface drip irrigation. Due to the capillary function of the soil, the water provided by the dripline will be sucked up to the roots of the crops. Because the driplines are located below plow-depth the ground can cultivated with machines without damaging the driplines. When used properly these systems can last from 10 to 20 years!

Open Field Crops – Sweet Water lenses/Drainwater level steering

Bridging longer periods of drought can be made possible through the use of a sweet water lens. Drainage pipes are used to collect water in wet periods. The collected water can be stored in a bassin or well. During dry periods the drainage pipes are flooded with the collected water from the wet periods to keep the soil moist and the crops healthy

A sweet water lens can be combined with surface drip irrigation which makes it possible to add fertilizer. This system can be operated through PC, smartphone, tablet or the irrigation computer itself. This system can also operate completely stand-alone by the use of solar panels.

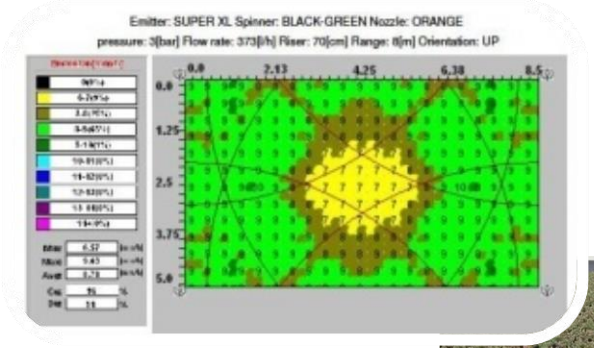




Tree Nurseries – Overhead Sprinkler container crops

Overhead sprinkler container crops, or micro irrigation is irrigation through sprinkling plants from overhead or on the stem like rain. This type of irrigation can be realised through the use of high quality sprinkler stands. Broere Hortitech designs standardized setups using sprinklers of four big manufacturers; Netafim, Rivulis, NaanDanJain and Nelson.

Various options are possible for combating night frost by sprinkling, sprinkling difficult areas in the tree nurseries such as field edges and maintenance of you irrigation system. All Broere Hortitech systems are designed with sustainability as a starting point to ensure that your irrigation system will last for years!



Tree Nurseries – Greenhouse and Shade Hall Irrigation

Greenhouses and shade halls are irrigated using overhead irrigation hanging from sublateral pipes. Sprinklers designed especially for this purpose are chosen to optimize irrigation uniformity. Because shade halls are located outside, wind has to be taken into account to ensure uniformity.

Non heated greenhouses require special sprinkler connections to prevent frost damage. Your pumping unit determines the sprinkler group size which in it's part determines how much fertilizer should be used (if applicable). White pipes are used to get as much light in the greenhouses and to keep water temperature as low as possible.

Hydroponics (mini tubers)

Mini tubers cultivated on aquatic culture, also known as hydroponics, provide more guidance to the development of the plant. This allows the hydroponics to be grown exactly as desired in contrast to growing mini tubers in the open air. Years of experience in the field of hydroponics have taught us a lot about the efficiency in cultivation. Besides hydroponics we also have experience with aeroponics, a system comparable to hydroponics.

Output Material

Hydroponics are grown from an in vitro plant. You can buy this plant directly from your supplier or you can produce it yourself in a lab.

Greenhouse

Traditionally, hydroponics are grown in foil greenhouses. The greenhouse must be equipped with insect netting and access sluices between different compartments in the greenhouse.

Cultivation table

The small in vitro plants should be grown on a cultivation table in a conditioned environment.

Climate-control

The climate is crucial for the cultivation of hydroponics. The humidity values and temperature in the greenhouse must be kept optimal in order to guarantee maximum production. The climate control is done by the control equipment that is built into the pump unit.

Technical support

Growing hydroponics requires some knowledge. With 10 years of experience in hydroponics cultivation we can give you important advice for both cultivation and the technique.

Training and cultivation supervision

Before starting hydroponics cultivation, a training day is a must. During this day, matters will be handled that are crucial for good control before the cultivation begins. After this day you can decide whether you want more or less guidance. Cultivation guidance is a valuable tool to stay up-to-date with the developments in the cultivation.

Project Realization - Support

Online support

Depending on the type of project, learning to use the new equipment requires an investment in time from the client. In order to simplify this, most of our installations can be serviced online by us when it comes to control. It can be helpful if we assist you during the first few days. If you have strong season-related activities, it may be desirable to get online support at the start of the season. A season appointment can be made on the basis of a bundle of hours or we work on a hourly basis.

Seasonal activities - Rolling in and out Drip hoses

- For potatoes for consumption we have a machine where we can hang 3 big wheels. Per day we can roll out 10-15ha. We make project-based agreements about this.
- For potatoes for consumption we have various types of drip line insertion tools available which you can temporarily mount on your ridging machine
- Various growers have developed special machines for lily cultivations.
- For bulbs and onions, various drip line insertions tools and frames are available.
- For big weels we have a machine available which can reel in thick-walled drip lines up to 400m in lenght.
- For the disposable driplines in seed potatoes, onions, bulbs and lilies we have recoiling machines available that coil up the driplines to be recycled.
- For the winding of 6/8/10/15mil hose we do also have machines available.

Export

Broere Hortitech exports since 1994. We started in Germany and the Czech Republic, now expanded to 25 countries where we realize various deliveries every year. There are also countries where our employees realize projects with local equipmen. Below is an overview of projects that we recently realized

Country		Project	Cultivation/Technique
	Norway	Mini tubers hydroponic project	Seedlings
	Poland South	Drip irrigation generator -> 400 VAC	consumption potatoes
	Poland South	Drip irrigation arial increase	consumption potatoes
	Czech Republic North	Drip irrigation project 15ha	vegetables
	Czech Republic central	Irrigation controller expanded	Tree Nursery
	Southern Czech Republic	Irrigation mixer, piping	perennials
	Germany	Pump and filtration set	Tree Nursery
	Portugal	Total project including basin; irrigation; mixer	Cut Flowers
	Bulgaria	roller table project	herbal cultivation
	Bulgaria	Total project design	Tree Nursery
	Saudi-Arabia	Irrigation Training	Dates
	Oman	Irrigation Training	Dates
	Ireland	Climate Control & Irrigation	Tree Nursery
	Lebanon	Water Harvesting	Fruit and vegetables
	Sweden	Upgrade and extension of the installation	Tree Nursey
	Germany	Greenhouse irrigation	Mixer and Climate
	Germany	Greenhouse	Drainwatersystem
	Germany	Water collection	Tree Nursery

CSR Policy - Involved in society and the environment

Broere Hortitech makes continuous improvements in the field of sustainable entrepreneurship throughout its entire business operations. We want to inspire and encourage our suppliers and customers to choose safe and sustainable solutions. All Broere departments and subsidiaries are involved in the implementation of this policy. Broere Hortitech's CSR policy is determined by the management.

Broere Hortitech also strives to reduce its energy consumption. For example, by using LED lighting in the company premises as well as motion sensors that ensure that the lighting turns off automatically when no activities take place. In this way no unnecessary energy is used. Research is being conducted into the feasibility of using solar panels.

With regard to the company car fleet, a clear choice has been made for EURO 6 engines. This emission standard is for vehicles that came into force in the European Union on 31 December 2013 for new passenger cars.

CARBON NEUTRAL SHIPMENT ups

Every shipment of goods Broere makes is done in cooperation with UPS Carbon Neutral. This special shipment method compensates all the CO_2 that is emitted during the shipment process by investing in projects that undo the damage that is done to the environment by the shipment process. This makes this shipping method compeletely carbon neutral!

KAARS Koffie

Broere also offers its employees and business relations a good cup of coffee. That is why we have chosen for KAARS coffee. This is a fair and affordable coffee of which the farmer can be traced and who also gets a fair price for their beans. The packaging is of course also sustainable and free of aluminum.

Broere's premises are maintained by an external cleaning company that uses biodegradable cleaning agents.

Not only in the business process is attention paid to sustainable entrepreneurship but also in the products we make sustainability is central. All our designs and applications are based on maximum water productivity. Broere also innovates in the field of drip irrigation, grid installations, solar installations, low volume micro irrigation, water recirculation and water harvesting.

Broere is also sustainably active in the social field by participating locally and actively in the entrepreneurial network ANBI foundation “Weids Bloemendaal” and facilitates the local skating tour through the beautiful nature reserve in Waddinxveen. Broere also sponsors and supports the logistics of the Gouds Kerst Wandel Theater and is also a sponsor of the Goudse Hofstededagen.

Contact

24 hour emergency service

Contact Broere Hortitech: +31(0)612800949

Contact:

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2741 LE Waddinxveen
Netherlands
Phone: +31(0)182-394496
Mail: info@broereberegening.nl

Opening hours pickup warehouse:

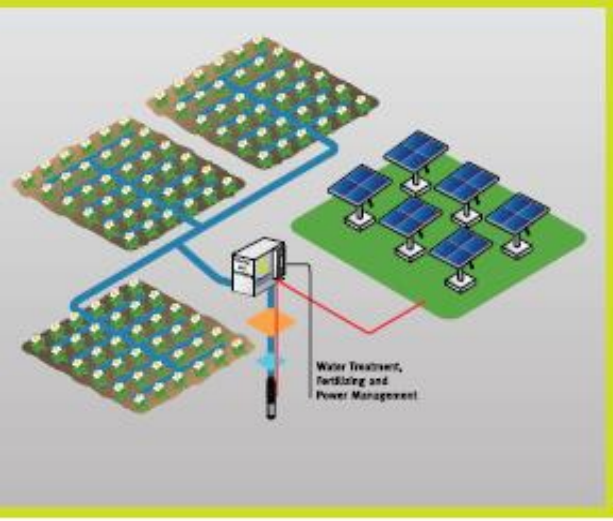
Monday:	07:00am – 5:00pm
Tuesday:	07:00am – 5:00pm
Wednesday:	07:00am – 5:00pm
Thursday:	07:00am – 5:00pm
Friday:	07:00am – 5:00pm

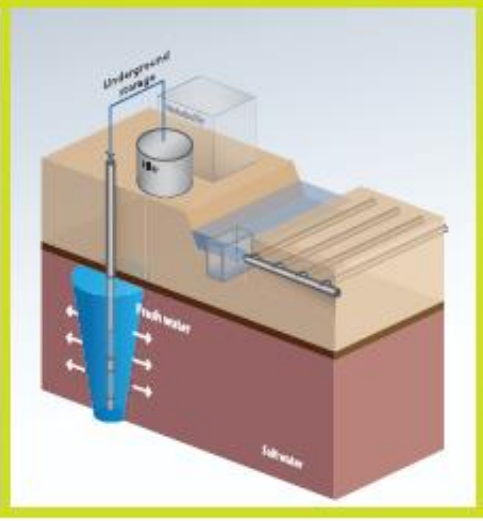
Your contacts

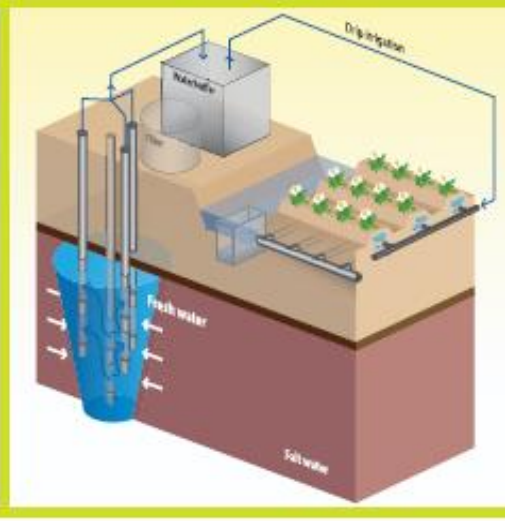
Arie-Jan Broere
Export and Waterharvesting

Dirkje Broere
Administration

André van Spengen
Solar units, pumpsets, Drip Irrigation







Broere

HORTITECH B.V.

we enjoy the power of water

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