



AquaSoil® is the newest development in the field of innovative soil production.

But **AquaSoil®** is not only a product but also a service for potential customers. In co-operation with the big soil producer GABCO in Germany, the **AquaSoil®** philosophy is realised. In this respect **AquaSoil®** will be always properly adjusted to the needs and demands of the customer. Just the basic idea as combination of

- high water storage capacity
- long lasting organic substrates
- living humus
- rich soil nutrition

with soils of the region remains always the same. The additives like minerals and salts, the concentration of the ingredients and the pH-Value can be different according to the needs and demands.

Being concentrated upon the task to deliver the best agricultural conditioner into the Middle East, the special circumstances in this region have to be observed. High sun radiation results in high soil temperatures. This is influencing the humidity in the soil and the micro biological activity.

To avoid or better to reduce the drying out of the ground, **AquaSoil®** has physical and chemical water storage features. These main properties will keep the water in the soil and avoid the water loss into deeper, sandy sections of the ground and will reduce the loss by evaporation.

But also the micro biological activity must be observed. In a standard soil with a normal content of humus the very high activity due to the high temperature leads very soon to a total mineralisation of the organic matter. That means the soil is “dead” after about one year, what means the micro biological activity comes to an end.

Because this high activity all normal organic compounds are converted too fast into the final end product of mineralisation which is nutrients in the mineral form. But an overload of minerals leads to a salty soil, which is infertile. Those salts are also water soluble and can be washed out very fast. That means that the soil is either too salty or at a later stage without any water soluble nutrients. Here it must be the task to delay this decomposition of the organic matter. That is realised by **AquaSoil®** with a very high content of humic acids (> 50%). This specific organic material resists longer the oxidation as enzymatic reaction caused by the micro-organisms in the living soil. Hereby the mineralisation is delayed and keeps the micro biological activity for many years even at high temperature levels in the soil.

But **AquaSoil**® contains also a portion of direct available organic matter for the first month's. Because the release of the nutrients out of the organic matter or the humic acid needs a certain time, sufficient fertilisers, especially as nitrogen- and phosphorus-compounds are added.

To fulfil the water storage function, **AquaSoil**® contains a physical and a chemical water storage system. The chemical system shows an immediate water absorption, whereas the physical system needs some hours to fulfil his function. In this time the water is released out of the chemical storage and assimilated by the physical storage system. That is discharging the chemical system and prepares it for the absorption of a new irrigation. Out of this reason the combination of both systems is **the** innovative step.

In the newest version has a total water storage capacity – calculated on the dry matter – of at least 500% and maximum 900%, depending on the salt content of the irrigation water.

The chemical water storage system is

- biologically harmless
- non toxic
- does not contain any toxicological relevant substances and
- effective up to 5 years after application, depending on the growing calcium content

AquaSoil® contains this water storage nearly molecularly dispersed what makes it possible, that the soil is irrigated extremely regular and even the smallest fibres of the root are serviced with sufficient water.

The effectiveness of **AquaSoil**® is based on the design of its additives, which enables the conditioner to absorb much more than its own weight in water. This process is reversible and occurs in the vicinity of plants, it can give this water up to the plant, when needed. This specific humus acts as a water reservoir for the plant and takes the plant through dry periods.

The equal humidity within **AquaSoil**® prevents also over watering and a possible partial process of decay, furthermore the better use of the stored humidity is guaranteed.

- The plants can take up water easier, as well as nutrients
- the plants produce more organic building blocks and, therefore, show increased growth
- the plants are stronger and are therefore less susceptible to disease
- due to the improved aeration, the micro flora and bacterial content of the soil is enhanced, which is beneficial for the growth of the plants



- the plants are more robust against stresses such as transplantation or dry periods
- the plants show prolonged shelf life and higher survival rates
- agricultural crops show increased yields

AquaSoil® can collect and store rain and irrigation water. This water is normally lost due to gravity and/or run off due to the soils poor water retention properties or by evaporation at the surface. Furthermore through **AquaSoil®** 's increase in volume it loosens the soil and enhances the aeration leading to improved air supply to the plant. These effects together result in a huge benefit for the plant, without the use of any conventional fertiliser, simply by using the growth enhancing properties of this special conditioner or soil + water.

AquaSoil® can enhance drastically the water storage capability of the soils. This reduces the watering frequency, water consumption and the power and labour costs that are invested into these functions.

AquaSoil® can help during the growth cycle of grasses and sod, particularly during the germination phase. Were quicker growth, reduction of transportation stress and root establishment are also key success parameters which establish the seedlings. The collection and the storage of rain and irrigation water can reduce labour and water costs, as well as providing relief for difficult growing areas.

AquaSoil® has various advantages against normal soil in the market:

- The evaporation volume is strongly reduced to about the half of normal soil
- The water flow out of the soil is strongly reduced even in a better ratio
- The soil structure remains quiet constant for a longer time
- The fixed water keeps the soil quiet dust free for a longer time, which avoids the erosion of the soil
- There is sufficient water within the soil for a long time, what means also around the roots of the plants.
- The fertilisation of the soil is also stored for a much longer time
- The water soluble soil nutrition will not be washed out so fast

The chemical storage capacity remains active for a long time, what means that with each irrigation the water content in the **AquaSoil®** is filled up and can develop its positive effects.

The salt content of the irrigation water must be considered, because this is reducing the storage capacity of the polymer. The physical water storage will not be influenced by the salts.



The best soil additive or concentrate which ever existed, with about 60% organic mainly as complex organic and a huge water storage capacity

Out of all those reasons **AquaSoil®** is unique and especially suitable for the cultivation of sandy deserts and infertile areas in hot zones.

AquaSoil® creates changes ...
... the permanent conversion from desert into farmland

www.aquasoil.org

www.aquasoil-humus.com

www.hydrosoil.de

Compliance

AquaSoil® as agricultural conditioner or as artificial agricultural soil comply fully with the Laws of Produce or Manufacture, Import and Circulate of Fertilisers and Soil Conditioners 2003 of the United Arab Emirates, paragraph: Agricultural Conditioner and paragraph: Artificial Agricultural Soil

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