Magnetic treatment of seeds

Seeds are the main foundation of a future plant. Its viability is determined by its immunity. Seed material can be of different qualities, for example immature grain has the ability to germinate as soon as warm wind or warm rain falls on moist soil. At the same time it will take 6-9 days for seed planted with the crop in the same soil to germinate under adverse conditions. This is nature's way to show its adaptability to survive. During harvest of crop, its seeds have different properties and therefore not all will germinate in the future. Therefore to ensure the desired number germinates, marginally more seeds are planted. Thus an optimal amount per hectare is selected. For example, wheat crop requires 6,000 kg of 1.5 ml per hectare.

It is considered a norm to sow 7 ml of germinated seeds (700 pc /m2), which is more than 4.7 times. In order to be safe, usually 10-12 ml or 8 times more the amount is seeded. So it needs 80 million tons of sowing material to seed a field of 80 million hectares in Russian Federation.

Magnetic treatment of weak seeds can save about 30% of total volume, given the same example of 8 million tons. Also treatment of healthy seeds, will save 30%, which is around 5 million tons. As a result, a total saving of such costly material as seeds will be 13 million tons.
Properties of a seed is determined by a process where a proton pump, located in the cell membrane, transforms it from a dormant state by means of phusiocoxin and activates auxin at level R1, cytocycin at R2 and phusicocin at R3. This accelerates exchange of oxygen, seed germination and increases cell volume using inflow of energy from the membrane and with the help of electrical potential which is transmitted through a cell membrane in a direction of low-pressure

Magnetic treatment restores the metabolism of seeds and provides protection from harmful effects of modern technologies used in agriculture. Magnetically treated plants acquire enormous genetic potential. This also applies to seeds which are able to maintain their genetic properties under extreme conditions. All seeds of cereals, fruit, and apple trees (Belsky, 1968) and cypresses (Jenn, 1975) have a shell, which slows down diffusion of oxygen and water absorption. In turn, the inhibitors will prevent seeds from germinating. This can be solved by using sodium hydroxide or phusicocin. A specialized magnetic system can serve as a complete replacement of costly process mentioned above. Naturally, there are hormones facilitating awakening of seeds.

For example, hormones used in apples contain auxin and gibberellin. These hormones reduce germination period of seeds by up to 30 days, whereas the same seeds after magnetic treatment can sprout on day 9 (see Figure 2).

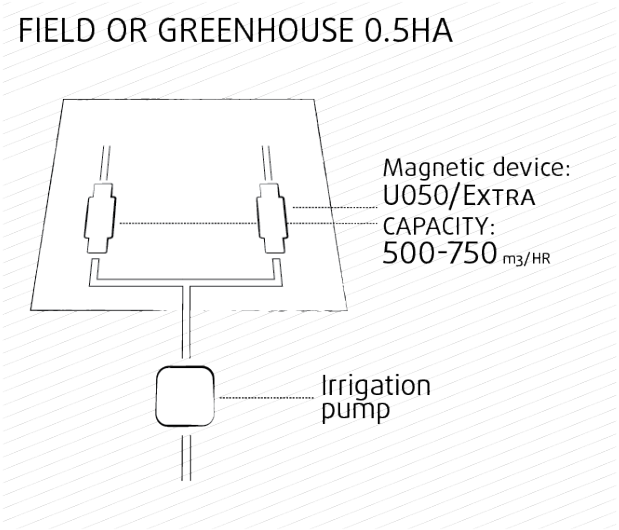
The breakdown of the seed coat is stimulated by red light and magnetic field. Root growth of the seed can be accelerated by using ethylene treatment inside a special gas chamber. Seeds of cherry, apples and pears can be activated and its germination rate can be accelerated by piercing its coating or completely removing it. In comparison to chemical reagents, magnetic systems are easier to use and more affordable.

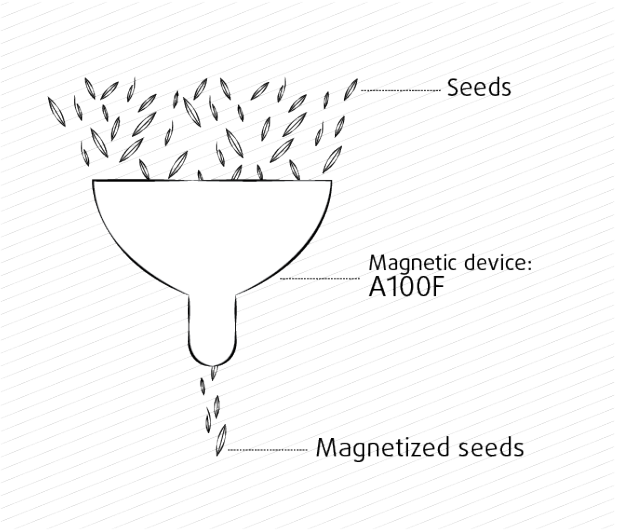
The following process occurs in the seeds (see Figure 3)- magnetic field reduces inhibitors' effect by increasing pH of a cell sap. Magnetic field x0 outside influence on polex 'within the cell membrane through energy x and receives
Back signal from x1 through x-membrane and x0. This leads to intensification, amortization or absorption depending on parameters of the magnetic field used. A specific magnetic field is selected for each culture depending on the issue at hand. Activation of any of the qualities of a future plant depends on the magnetic gradient and selection of a magnetic material, which enhance transcription RNA. This results in the formation of proteins, stimulates root growth and helps germination of weak seeds, which would not naturally germinate.

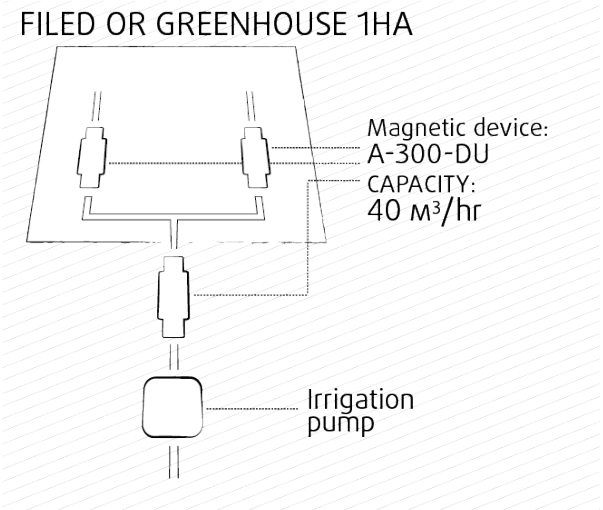
Crop areas

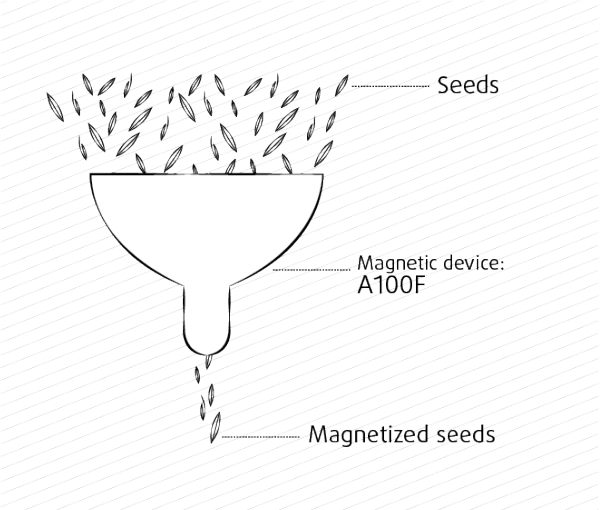
It is evident that different crop areas require different technical conditions for irrigation. In some cases it is main water pipes, in others it is wells. Sometimes it is a set of pumping equipment with water intake from natural or artificial reservoirs. For each of these options we will find the optimal solution for installation of our equipment.

Below are a few hypothetical examples of installing magnetic systems in different sized crop areas with centralized water supply.

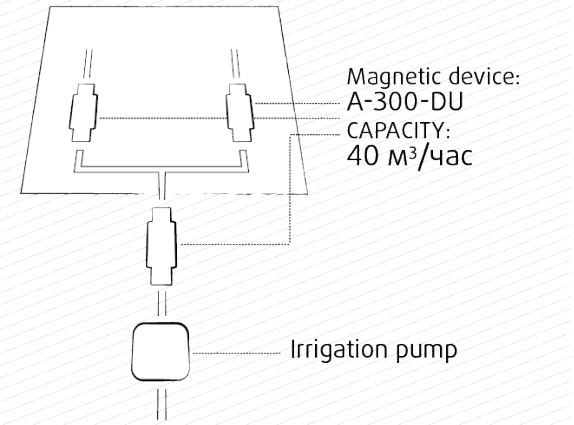


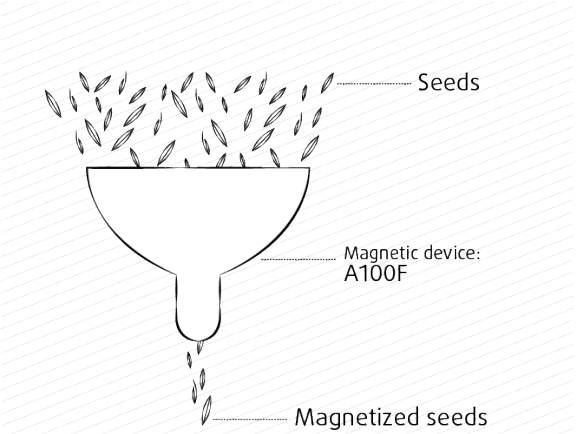




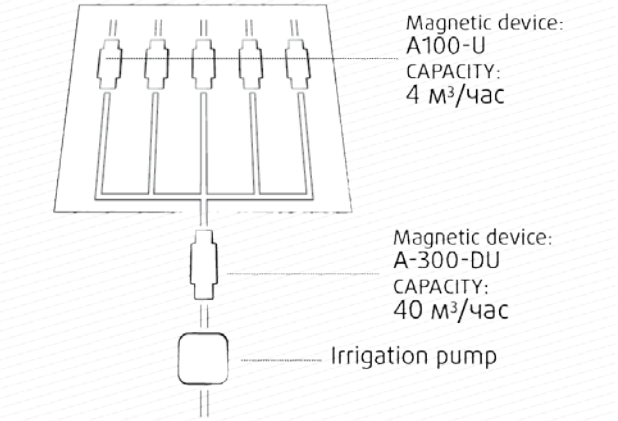


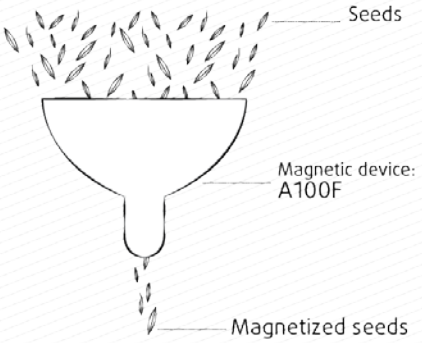
FIELD OR GREENHOUSE 5HA

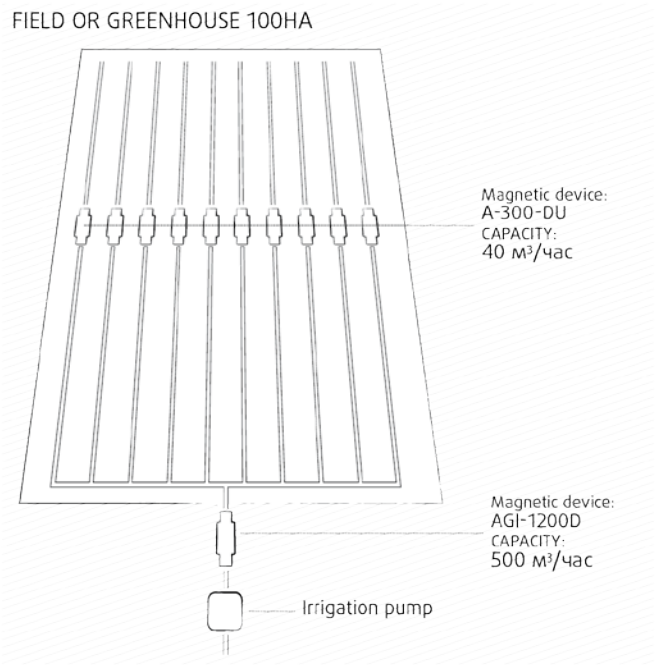


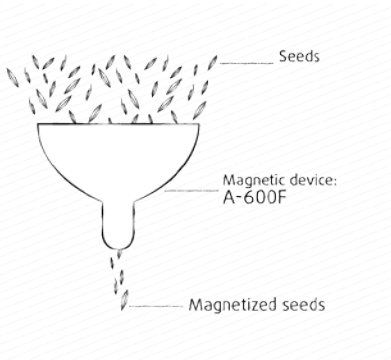


FIELD OR GREENHOUSE 10ГА






FIELD OR GREENHOUSE 100HA
Magnetic device:
A-300-DU
CAPACITY:
40 м³/час
Magnetic device:
AGI-1200D
CAPACITY:
500 м³/час
Irrigation pump


Seeds
Magnetic device:
A-600F
Magnetized seeds

Hydroponics. Green Houses

According to the Food and Agriculture Organization of the United Nations (UN FAO) more than 800 million people do not have enough to eat. Hydroponic technology offers the potential of reducing hunger. This technology has been explored since 1984 in Colombia and introduced in 13 countries with projects supported by UN FAO, UN Development Program (UNDP) and others. The technology reduces land requirements for crops by 75% or more, and water use by 95%.

Few people know that Hydroponics first originated in the Middle East. Thousands of years ago the inhabitants of this region were growing plants without land in the Hanging Gardens of Babylon.

Bahrain is a good example of how an entire nation can benefit using hydroponics. This state is a small island near the western shores of Arabian Gulf. The territory consists of desert plains and has shortage of fresh water. This small island is surrounded by sea water. Because of this it invests large funds in hydroponics. Given constant increase in food prices, government of Bahrain trains local people in hydroponic crop production and encourages them to use hydroponic systems.

As the global population continues to grow, the value of crop will also rise. Expect to see many more governments and companies investing in hydroponics systems in near future as the costs of water, fertilizers and labor continue to rise.

Disaster Recovery and Drought Resilience

Enhancement of hydroponics using Magnetic Technologies

There are 7 types of hydroponic growing systems:

[Aeroponics, Drip, Ebb and Flow, N.F.T, Water Culture and Wick.]

1. Aeroponic System: One of the most high tech growing systems
2. Drip System: The most widely used type of hydroponic systems
3. Ebb and Flow System: The system can be modified in many ways
4. N.F.T.: Nutrient Film Technique System - most commonly thought of
5. Water Culture System: A very simple to use hydroponic system
6. Wick System: The simplest of all hydroponic systems
7. Aquaponics: Combines water use for plants and fish production

Water molecules, due to activity 'interference', lose their polarity charge and then naturally cluster by creating hydrogen bonds, retaining and suspending pollution particles, restricting the plants and animals from efficiently absorbing the water through their cells. Magnetizing water breaks the hydrogen bond between molecules reverts the molecule distribution evenly, recharging the molecules, allowing water to be used more efficiently, lessening required intakes, maximizing nutrient absorption.

Effectiveness, aims and advantages of using magnetic technologies in hydroponics

- Iron and Manganese ions oxidize and precipitate out of solution causing problems of root staining creating nutrient absorption deficiency. This process is exacerbated when the water is sanitized with UV light or chemicals.
- Magnetic devices in the nutrient flow will attract and remove Iron oxide, keeping the plant root systems and sterilizers cleaner. This in turn leads to a cleaner root system, improving nutrient uptake and consequently greater yield and growth rate.
- Magnetized produce looks better, healthier and more defined in color and, tastes better.
- Magnetized water improves the resilience and eliminates many traditional blight.
- Magnetic irrigated plants produce increase their shelf life maintaining appearance and flavor.
- Magnet irrigation produces a significant increase in produce size and defined shape, whilst retaining all other benefits.

General advantages of incorporating magnetic devices within water

irrigations systems:

- Vegetation period decreases by 15-20 days, therefore the crops ripen 15-20 days earlier than normally.
- Crop production increases from 15-20% to over 70%, in some cases.
- Plant disease rates drastically decrease.
- Taste of agricultural produce improves.
- Approximately 30% less water is needed for irrigation
- Therefore 30% less energy is used in water pumps.
- Brackish water can be used for irrigation (from 2-7 thousand PPM inclusive) and for some species, higher ppm can be used (upto 15 thousand inclusive).
- By magnetizing seeds before sowing and by irrigating them with magnetic water, germination improves by excess of 30%
- Average of 30% decrease in fertilizer consumption is required.
- Active soil desalination takes place, increasing crop production year after year.

Note for engineers: Installation of magnetic devices on pumps, increases efficiency of pumps and pipeline capacity by 30%.