معالجة المياه بأستخدام التكنولوجيا المغناطيسية وتطبيقاتها الهندسية والصناعية

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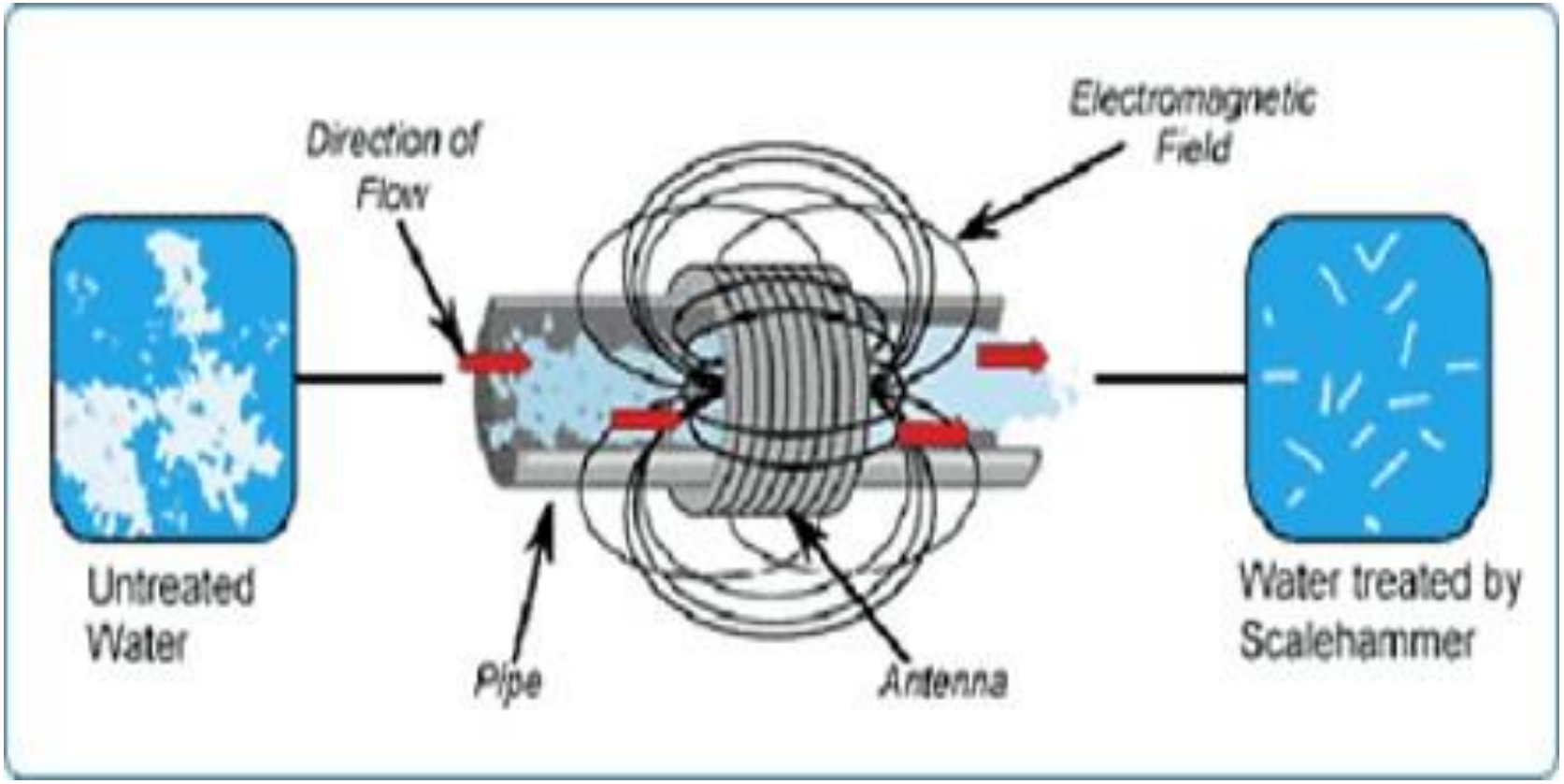
WHAT MAGNETIC TECHNOLOGY DO

Water can be magnetized when subjected to Magnetic field , and some important properties of magnetized water have become useful in industries associated with its surface tension, pH, viscosity, electrical conductivity, and scale formation inhibition. Magnetic treatment does not change the chemistry of the water, but It alters the structure and property of liquid water resulting in improvement of filtration properties and increase dissolving properties of water.

Magnetohydrodynamic (MHD) (magnetofluid dynamics or hydromagnetic) is the study of the dynamics of electrically conducting fluids. Examples of such fluids include, liquid metals, and salt water or electrolytes.


Direction of Flow
Electromagnetic Field
Untreated Water
Pipe
Antenna
Water treated by Scalehammer

Magnetic Devices

- Magnetic induction in the range of 3.5–136 mTesla
- Water flow direction should be from North magnetic pole to South magnetic pole
- The magnets should be installed on the pipe between the main valve and the irrigation pipe.
- The mounting plate serves to increase the magnetic field present inside the pipe

Features of Magnetic Devices

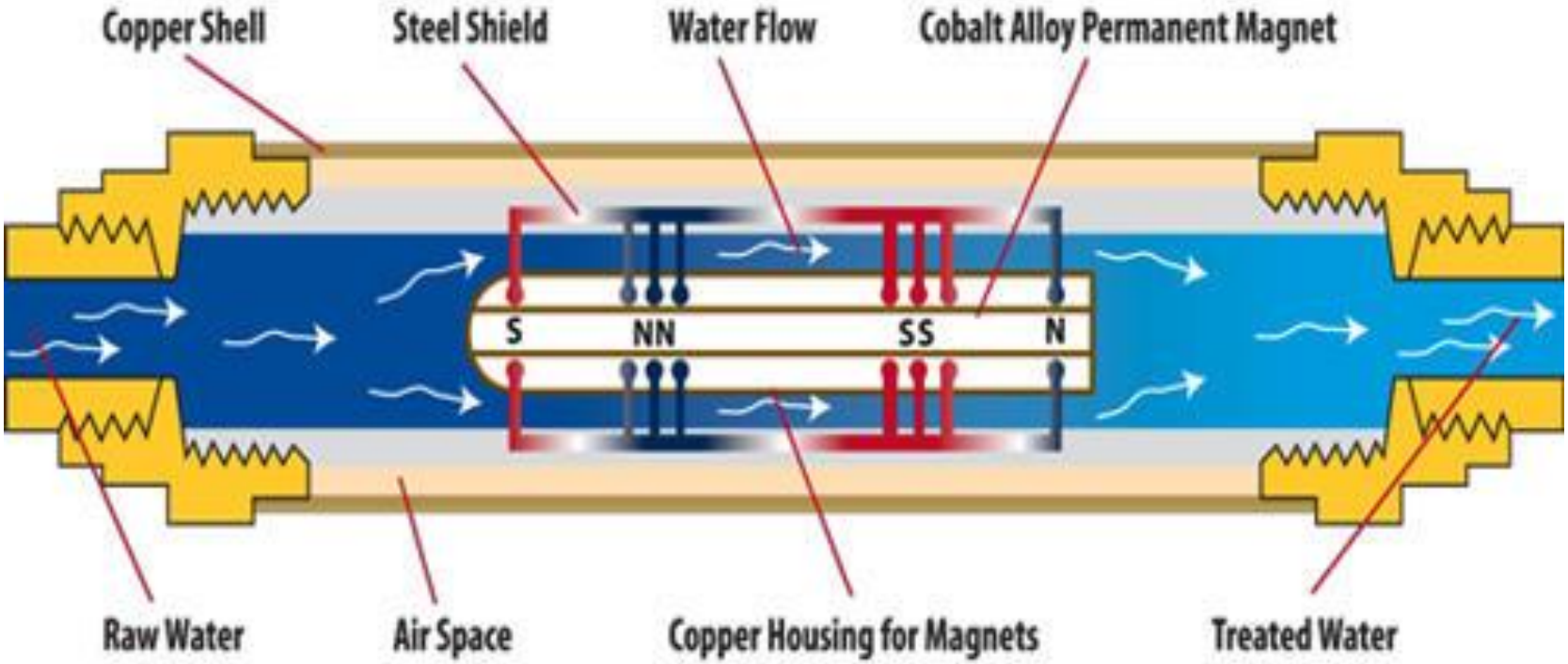
- No Running Cost
- No Maintenance
- No Operational Cost
- Simple Installation
- No Raw Material Used
- Product Life 15 years
- No Space Constraint
- No Replacement of Parts
- 100% Chemical free technology with no side effects
- No Electricity Required

Types

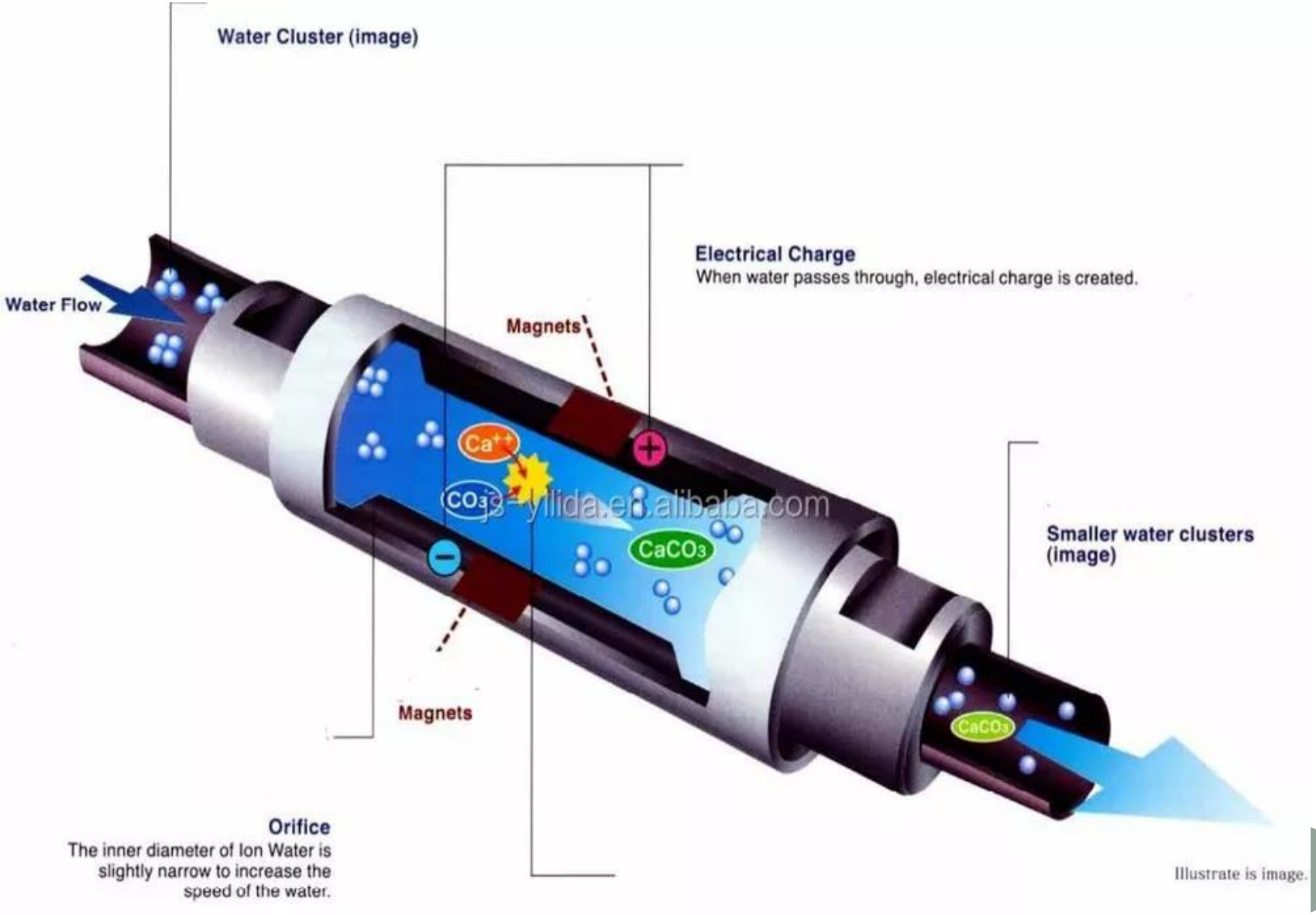
- Temporary magnets
- Permanent magnets
  - Interior installed magnet
  - Exterior installed magnet

Temporary magnets

Interior installed magnet



Exterior installed magnet



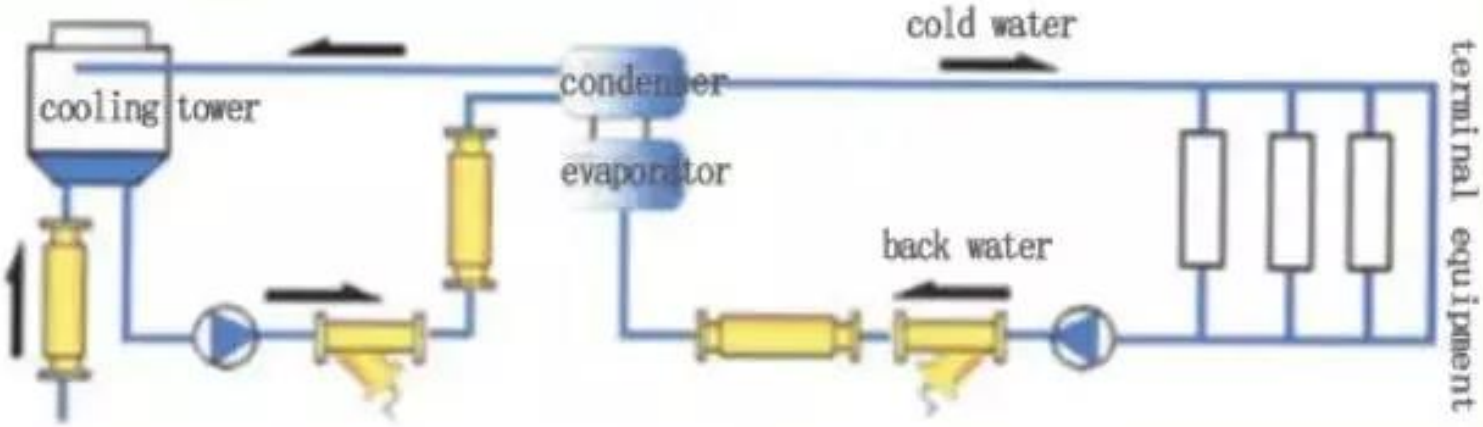
PRODUCT CHARACTERISTICS

- Clear and to prevent pipe scale and rust build
- Environmental pollution does not use chemicals
- Not energy, long lifespan for effective running.
- No expert management of low maintenance costs
- Small, simple and quick installation
- Process to achieve zero emissions, save a lot of water
- Improve the system heat transfer efficiency, energy saving (15%-30%)
- Descaling process can produce hydrogen peroxide and reduce bacteria content in water

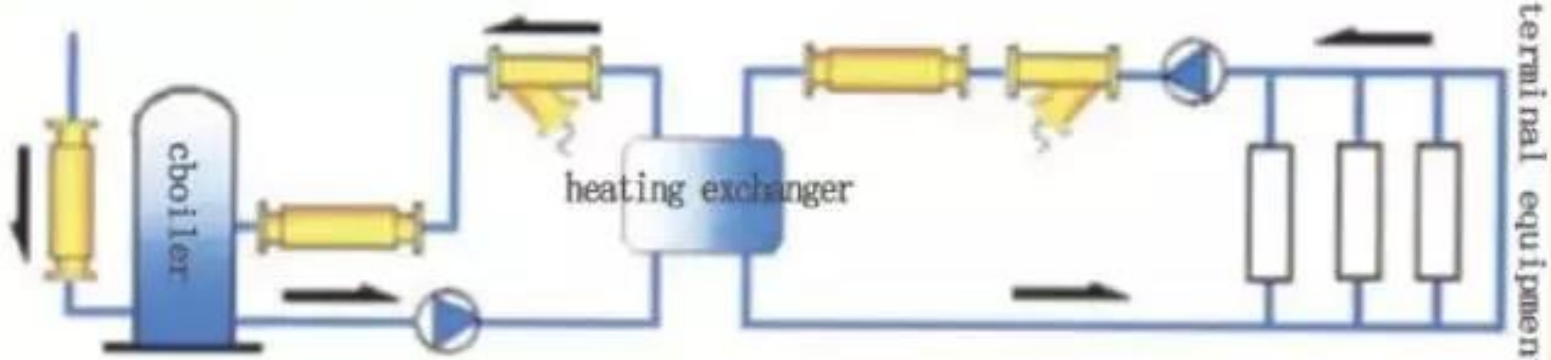
ENGINEERING APPLICATION

- Central Air Conditioning System
- Industrial cooling water system
- Landscape, swimming pool system
- Eliminate scaling by magnetic field
- Heat exchange system, heating system
- Production and domestic hot water supply system
- Impact of magnetic water diary
- Magnetic Water Treatment in the Agriculture Industry

Central air-conditioning cooling water system



Heating water cooling system

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Magnetic Water Treatment in the Food Industry

- Milk
- ✓ Increase milk production by 10% to 15%
- ✓ Increase fat content of milk by 0.13 - 0.15%
- ✓ Magnetically treated water can also help in process of milking.
- ✓ Magnetically treated water reduces firmness of the utters and making milking process easier
- ✓ Magnetically treated water drastically decreases the amount of bacteria in milk

- Meat
- ✓ Improve taste of meat
- ✓ Increase average weight gain in calves up to 35%
- ✓ Increase average weight gain in lamb up to 12%
- ✓ Increase in quantity of meat
- ✓ Improve quality of meat

- Resistance against diseases
  - ✓ Prevent diseases in animals caused by contaminated water and fodder
  - ✓ Animal that drink magnetically treated water also show signs of significant disease resistance
  - ✓ Gives protection against skin diseases
  - ✓ Skin glow and shines.
  - ✓ Decrease disease and death rates by approx. 2 times

- Commercial Benefits
- The installment of special magnetic system will double the storage time (shelf life) of milk in containers.

- Breeding
  - ✓ Improve fertility
  - ✓ Increase the reproductive performance of animals by making them more active.

- Other benefits
  - ✓ Showering with Magnetic water improve Health conditions and mood of animal

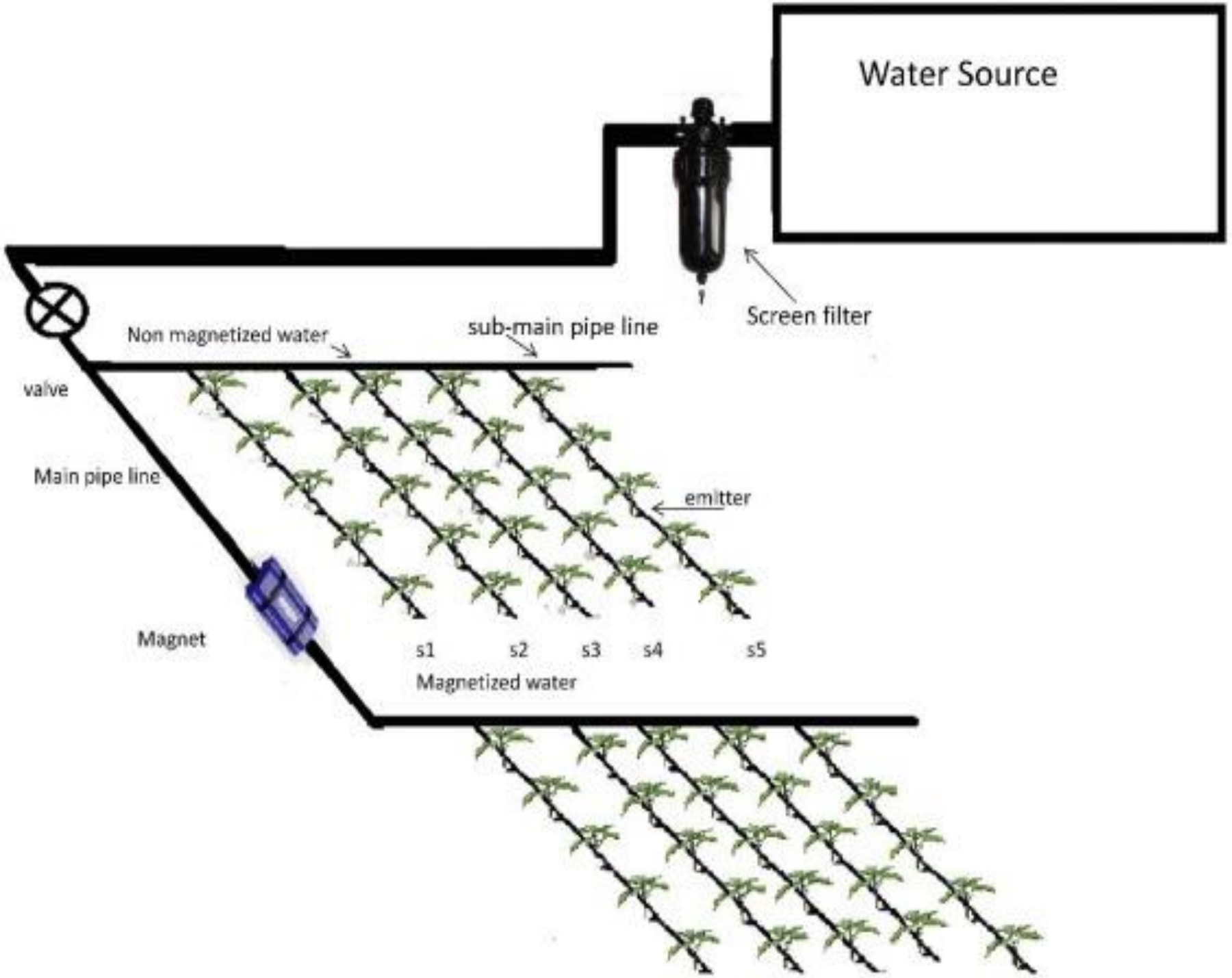
Magnetic Water Treatment in the Agriculture Industry

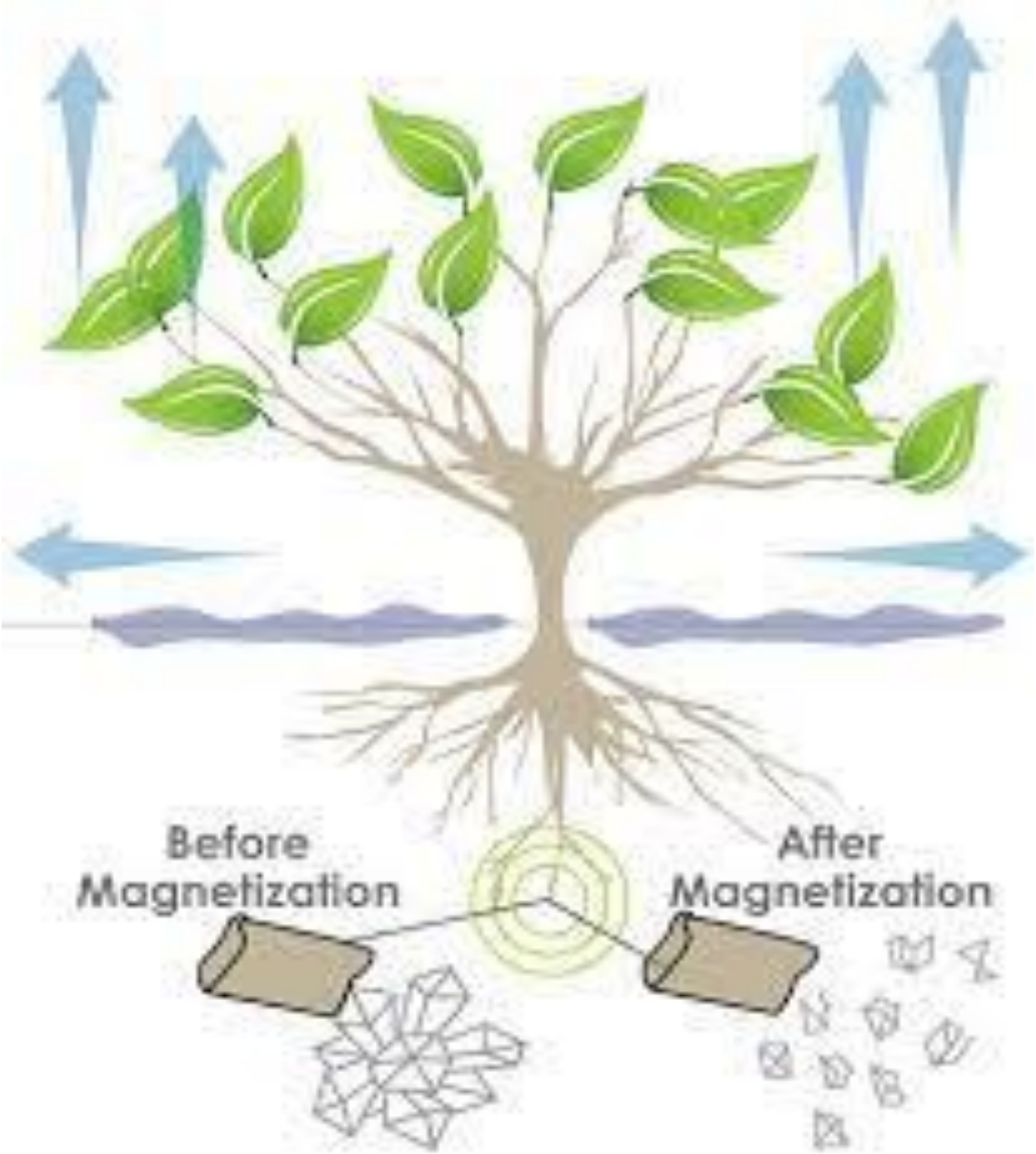
In agriculture, a high concentration of salt accumulation in the soil can decrease the value of farmlands and productivity meaning less healthy or less abundant crops for farmers. Because of this, there is a need to reduce salinity in soil and “improve the leaching of salts below the root zones of salt-sensitive crops,” such as potatoes, tomatoes, and citrus fruits. Especially when irrigating crops with groundwater, you run the risk of distributing water containing high levels of saline. When salt dissolves in water, sodium and chloride ions separate and displace other beneficial mineral nutrients like potassium and phosphorus. The damage can appear as plant discoloration, delayed or diminished growth, and nutrien

- Increased root growth due to better absorption of dissolved minerals and nutrients, improving yield and profitability
- Better, faster growing grass, plants, fruits and vegetables with less water used
- The soil remains moist longer, thus requiring less irrigation water
- Increased fertilizer efficiency, reducing chemical use, as the fertilizer is absorbed by the plant and is not wasted
- Descaling irrigation lines, eliminating maintenance down-time resulting in lower costs
- Good & proven use for desalination systems to keep the membranes brine free and corrosion/scale free, as well as inhibiting algae
- Lowering SAR (sodium adsorption ration) in desalinated water by 90%
- Substantially lowering operational costs while enhancing yields


Saline Water Treatment
For High Yield
Agriculture Farms Crops Irrigation


12/03/


Water Source
Screen filter
Non magnetized water
sub-main pipe line
valve
Main pipe line
emitter
Magnet
s1
s2
s3
s4
s5
Magnetized water

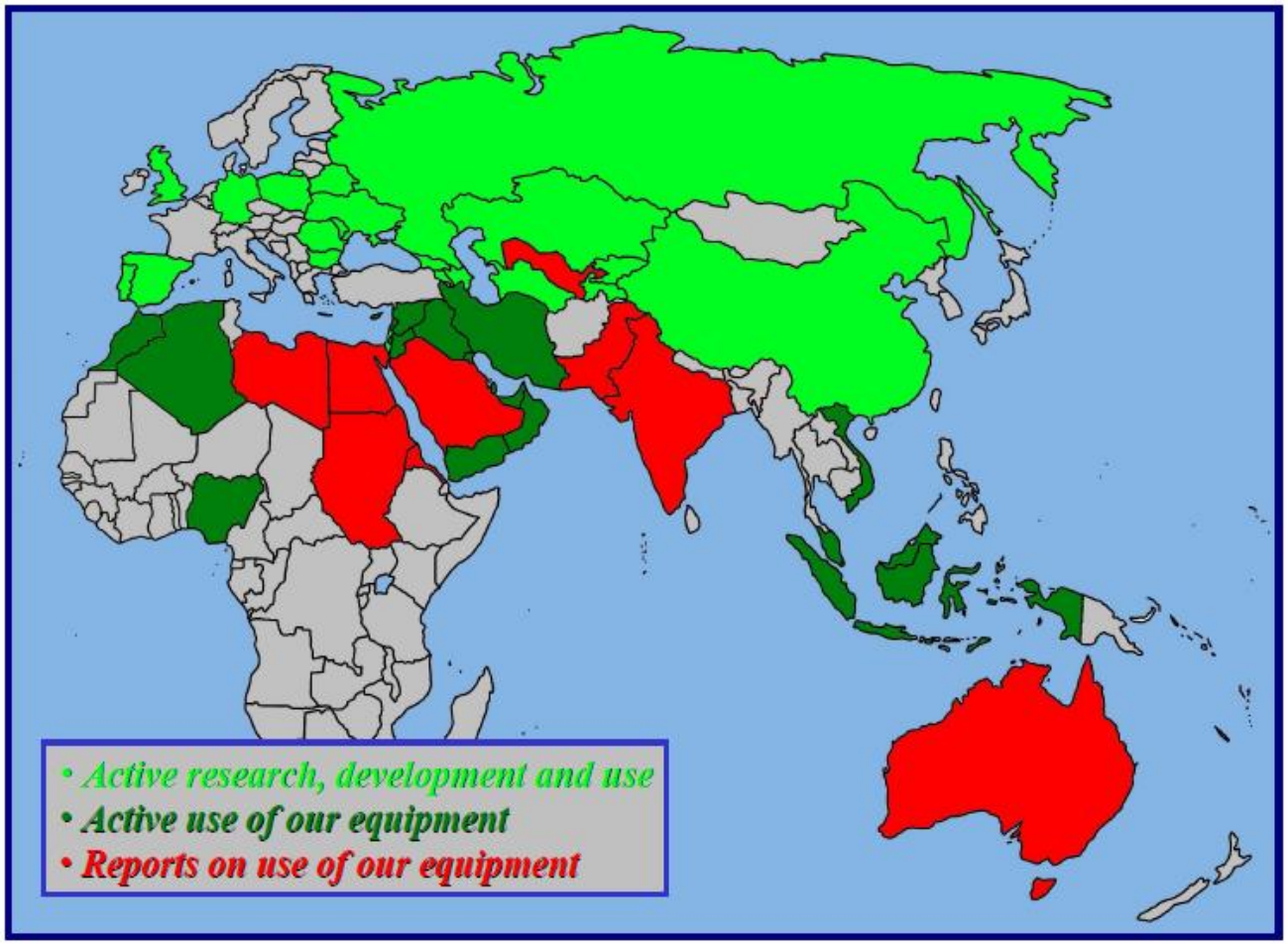

Before
Magnetization
After
Magnetization

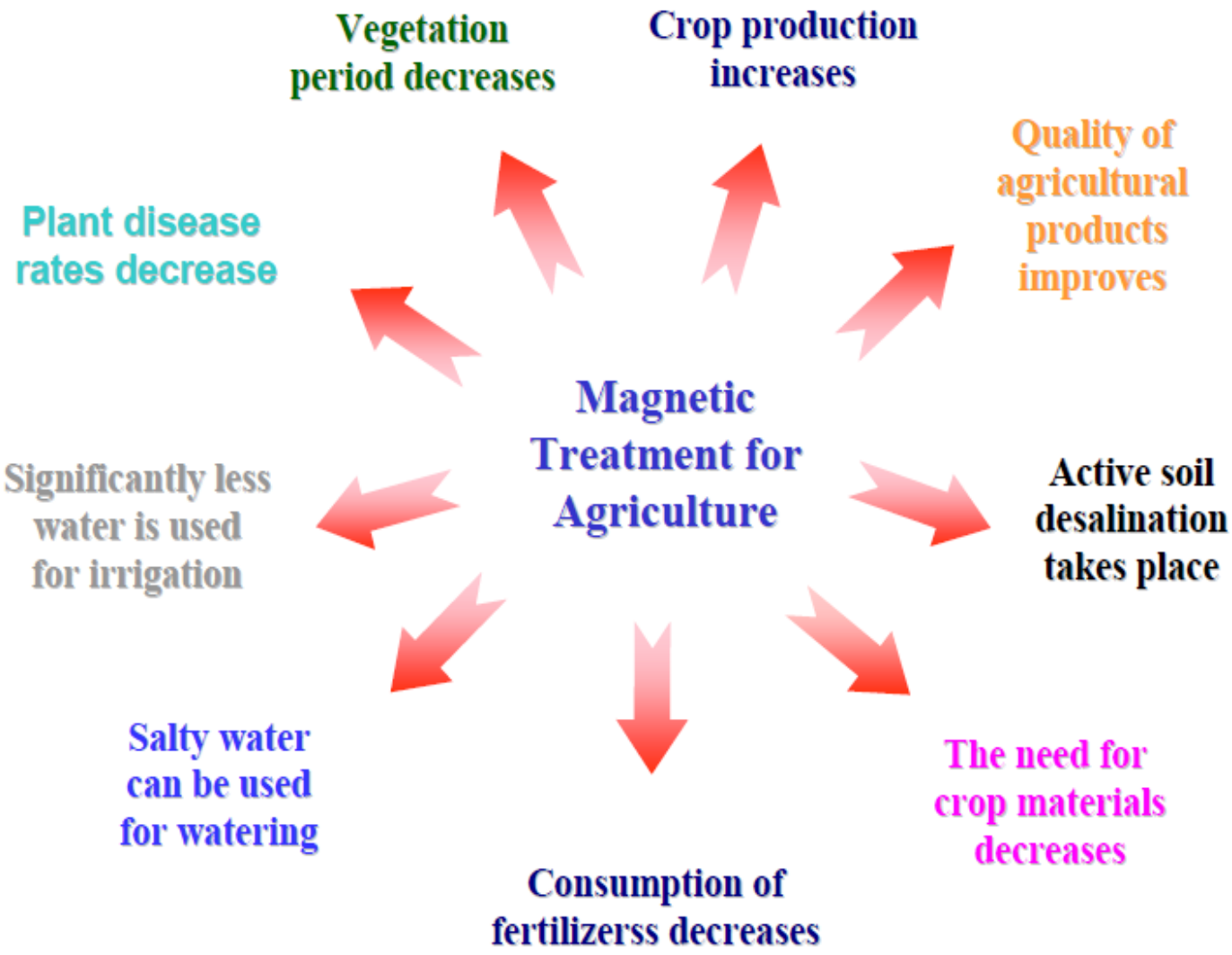
Installation Images


EGYPT: Farm with Magnetic Treated Water Irrigation
Mr. Ahmad Bahgat
mob.: +971 50 5538709
e-mail: abahgat2007@gmail.com


LYBIA: Olive farm
Magnetic device for irrigation water treatment

GEOGRAPHY OF MAGNETIC TECHNOLOGIES




Vegetation period decreases
Crop production increases
Quality of agricultural products improves
Plant disease rates decrease
Magnetic Treatment for Agriculture
Significantly less water is used for irrigation
Active soil desalination takes place
Salty water can be used for watering
The need for crop materials decreases
Consumption of fertilizerss decreases

Benefits

- Devices are eco friendly
- Low installation cost
- No energy requirements
- Prevents water from forming normal chemical reactions
- Reduces hydrogen sulfide smells and iron buildups
- Gives hard water properties of soft water
- Stops buildup of scale and rust
- No Water Treatment Cost.
- Durable and Long Lasting.
- Zero Maintenance Cost
- Degassing of water
- Reduce electrical bills

Advantages

- Yields 10%-30%
- Water absorption in soil
- Bio-availability of water and nutrients to plants
- Increase oxygen concentration
- Improve soil pH
- Increase flow of water
- Increase weight and size of product
- Extent shelf life of produce
- Increase seed germination
- Reduce water use up to 30%
- increase the levels of CO_2 and H+ in soil

- Reduce total dissolved solids (TDS)
- Reduce fertilizer and pesticide needs
- Advanced ripening of fruits in all cases
- Affect soil nutrient availability
- Activate plant enzymes
- Reduce disease in livestock
- Reduce disease in aquaculture industry
- Increase the no of hydrogen bond
- Enrich soil permeability

Case studies

CASE STUDY -1

Magnetic water application for improving wheat crop production

Mahmoud Hozayn
Agronomy Dept., Agric. and Biol. Div.,
National Research Centre, Cairo, Egypt

Amira Mohamed Saeed Abdul Qados
Botany Dept., Princess Nora Bint Abdul Rahman University,
Riyadh, KSA

Seasons 2008/2009 – 2009/2010

Materials and methods

- Grains were selected and planted in twenty pots
- Half of the pots were irrigated once a week interval with tap water
- Other ten pots were irrigated with the tap water after magnetization
- Plant height, fresh and oven dry weight of twenty wheat plants were determined

Results

- Growth criteria
- Photosynthetic pigment contents
- Indole and phenol contents
- Wheat yield and its components

Magnetic water application for improving wheat crop production

Response of wheat growth at 55 days after sowing

	2008/2009		t-sign	2009/2010		t-sign
	Untreated tap water	Magnetic treated water		Untreated tap water	Magnetic treated water	
Plant height (cm)	20.75	24.12	**	26.20	29.20	**
Fresh weight (g/tiller)	0.68	0.98	**	0.79	1.21	**
Dry weight (g/tiller)	0.17	0.23	**	0.21	0.29	**
Water contents (%)	75.00	76.53	*ns*	74.04	75.60	*ns*

* - *significant at the 0.05 level,*
** - *significant at the 0.01 level,*
ns - *non significant.*

Magnetic water application for improving wheat crop production

Response of photosynthetic pigment, total indole and phenol contents in fresh wheat shoot at 55 days after sowing

		Untreated tap water	Magnetic treated water	*t-sign*
Photosynthetic pigments (mg/100 g fresh weight)	Chlorophyll a	8.24	9.68	**
	Chlorophyll b	4.97	5.54	*ns*
	Chlorophyll a+b	13.21	15.22	**
	Carotenoids	5.67	5.84	*ns*
	Total pigments	18.88	21.07	**
Total indole (µg/100 g fresh weight)		2.94	9.80	**
Total phenol (mg/100 g fresh weight)		215.62	288.05	**

** - *significant at the 0.01 level,*

ns - *non significant.*

Magnetic water application for improving wheat crop production

Response of wheat yield and its components

	2008/2009		t-sign	2009/2010		t-sign
	Untreated tap water	Magnetic treated water		Untreated tap water	Magnetic treated water	
Plant height (cm)	39.80	47.00	*	56.40	59.60	*
Spike length (cm)	5.00	6.60	**	8.50	9.20	**
Spike weight (g)	0.48	0.53	**	0.64	0.75	**
Spikeletes (No/spike)	9.00	12.00	**	14.40	16.00	**
100-grain weight (g)	4.03	4.31	ns	4.14	4.42	ns
Grain yield (g/tiller)	0.30	0.40	**	0.75	0.97	**
Straw yield (g/ tiller)	0.59	0.80	**	0.93	1.06	**
Biological yield (g/tiller)	0.89	1.20	**	1.68	2.03	**

* - *significant at the 0.05 level,*
** - *significant at the 0.01 level,*
ns - *non significant.*

CASE STUDY -2

Magnetic Treatment of Irrigation Water and Snow Pea and Chickpea Seeds Enhances Early Growth and Nutrient Contents of Seedlings

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University of Western Sydney, Penrith South DC,
NSW, Australia

Materials and methods

- The treatments included

  (i) Magnetic treatment of irrigation water

  (ii) Magnetic treatment of seeds (MTS)

  (iii) Magnetic treatment of irrigation water and seeds

  (iv) No magnetic treatment of irrigation water or seeds as control treatment

Results

- MTW (Magnetically-treated water)
  - Emergence rate index
    - snow pea- 42%
    - chickpea- 51%
  - Shoot dry weight
    - snowpea- 25%
    - chickpea- 20%
- MTS (Magnetic treatment of seeds)
  - Emergence rate index
    - snow pea- 33%
    - chickpea- 37%
  - Shoot dry weight
    - snow pea- 11%
    - chickpea- 4%

Effects of Magnetic Treatment of Irrigation Water and Seeds on Seedling Emergence and Emergence Rate Index (ERI)

Treatments	Emergence, %		ERI, %	
	Snow Pea	Chickpea	Snow Pea	Chickpea
Control	62.5	68.8	0.375	0.455
MTW	75.0 (20.0)	93.8 (36.4)	0.532 (41.6)	0.688 (51.0)
MTS	68.8 (10.1)	81.3 (18.2)	0.500 (33.2)	0.625 (37.3)
MTWS	93.8 (50.1)	87.5 (27.3)	0.688 (83.3)	0.652 (43.2)
	S	*NS*	*S*	*S*

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	S	*NS*	*S*	*S*

Effects of Magnetic Treatment of Irrigation Water and Seeds on Increase of Snow Pea Seedlings Nutrient Contents (%)

(20 Days After Sowing)

Nutrients	Magnetic Treatment of		
	water	seeds	water and seeds
N	22.56	11.31	8.37
P	7.25	3.97	1.73
K	14.43	8.76	3.34
Ca	33.33	27.78	16.67
Mg	14.45	9.83	5.20
S	13.11	8.99	5.62
Na	36.99	15.07	6.85
Zn	17.34	19.06	16.49
Cu	20.20	12.12	5.05
Fe	14.65	14.37	6.25
Mn	36.98	25.26	20.05
B	19.17	17.50	5.00

Effects of Magnetic Treatment of Irrigation Water and Seeds on Increase of Chickpeas Seedlings Nutrient Contents (%)

(20 Days After Sowing)

Nutrients	Magnetic Treatment of		
	water	seeds	water and seeds
N	16.53	4.46	5.45
P	11.45	6.33	6.63
K	16.10	4.58	6.02
Ca	13.76	0.34	1.01
Mg	18.42	14.04	12.28
S	11.11	-1.11	-2.22
Na	3.78	-2.76	-4.51
Zn	14.49	7.39	8.52
Cu	11.47	-1.01	0.79
Fe	17.65	3.21	3.21
Mn	12.24	4.08	2.04
B	12.26	5.66	2.83


THANK
YOU