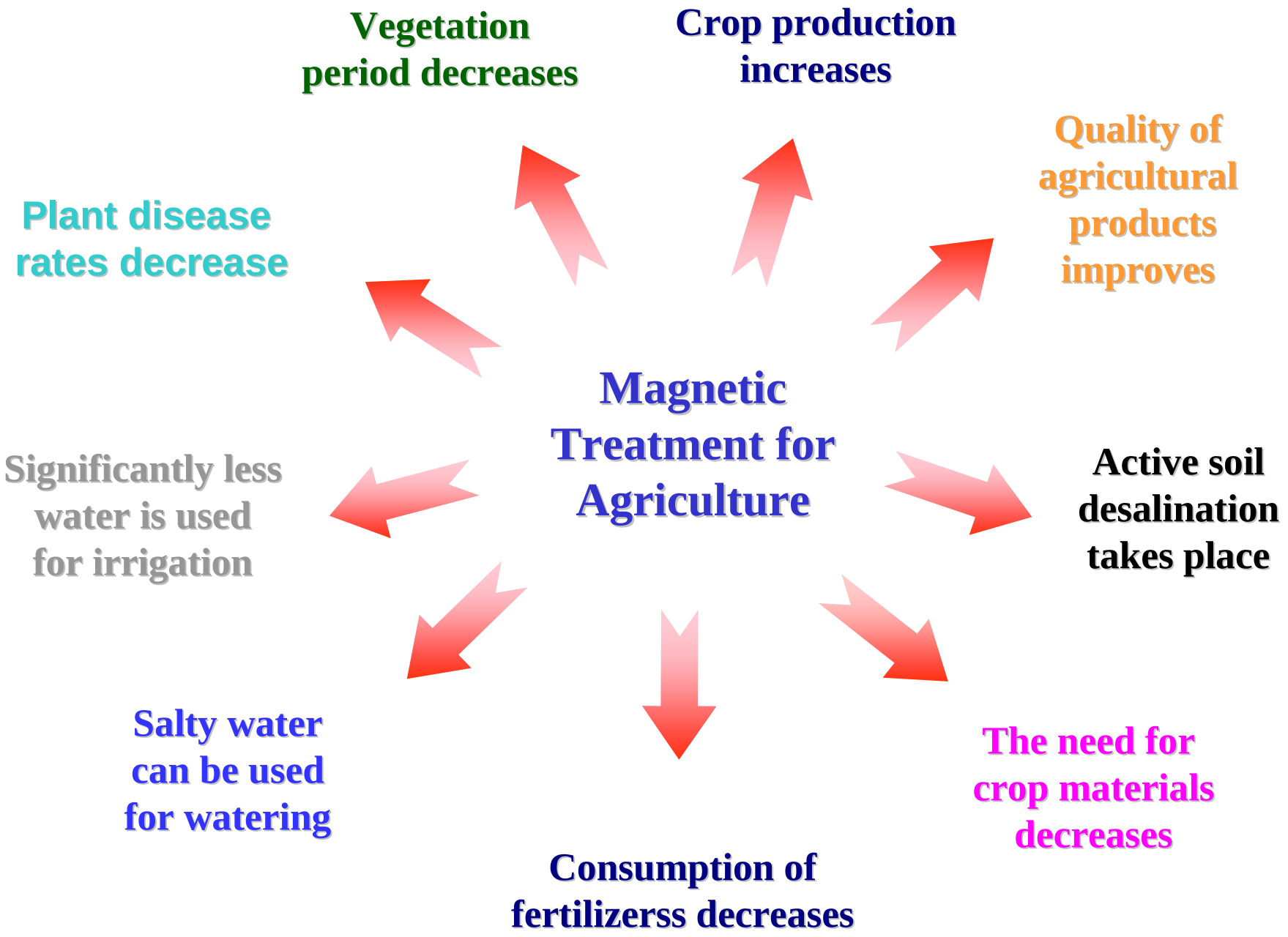
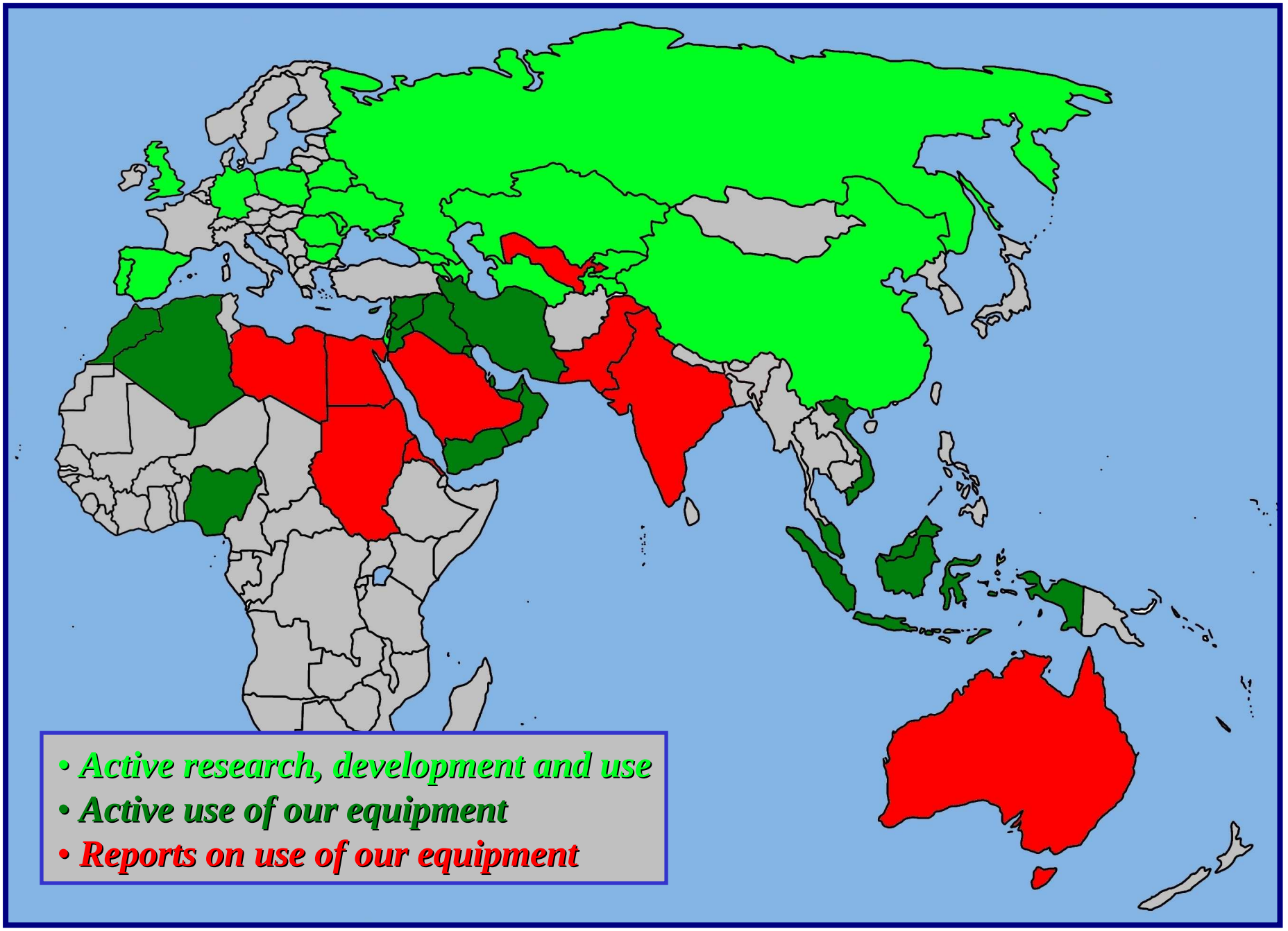
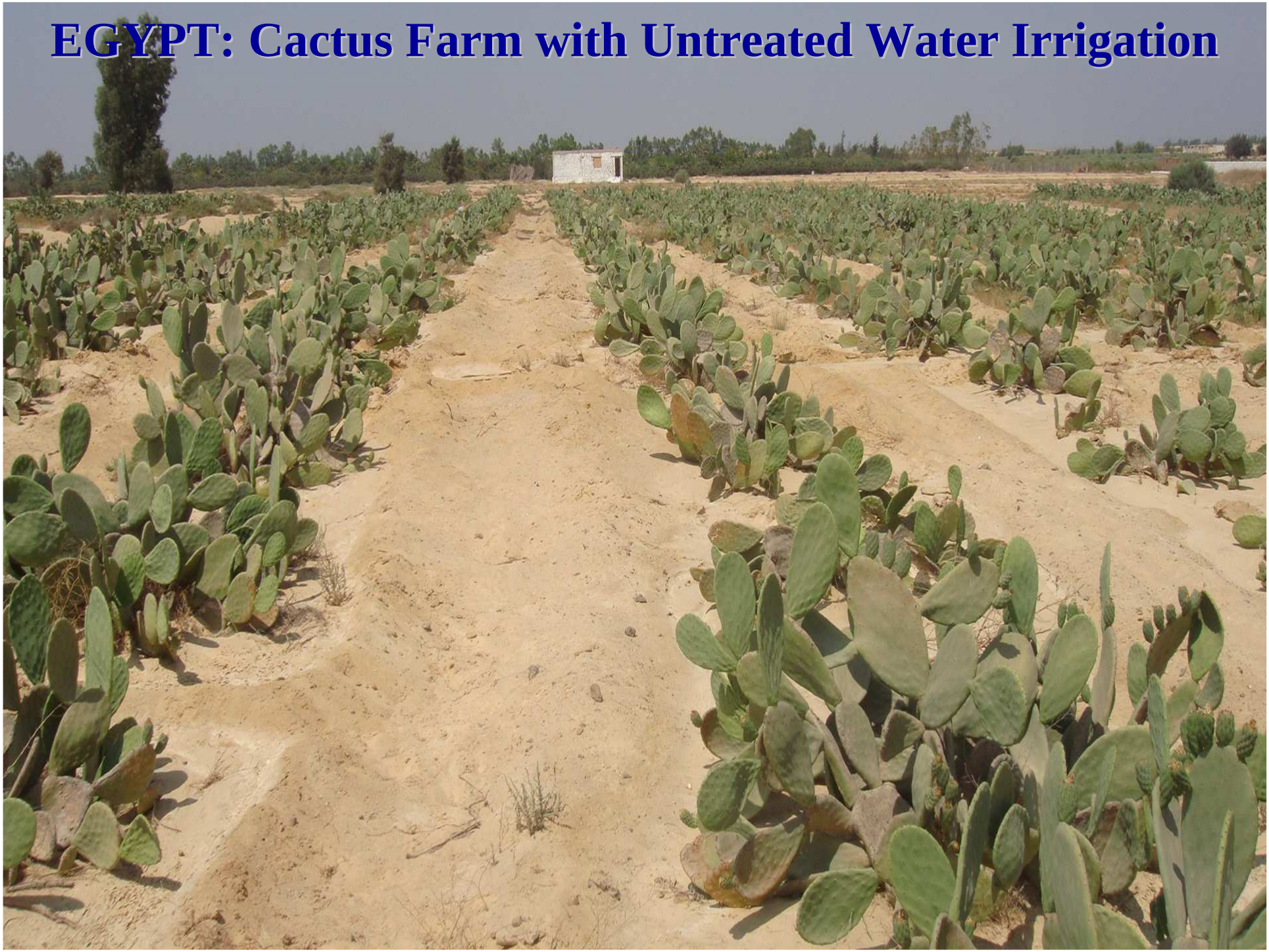

Vegetation period decreases
Crop production increases
Quality of agricultural products improves
Plant disease rates decrease
Magnetic Treatment for Agriculture
Significantly less water is used for irrigation
Active soil desalination takes place
Salty water can be used for watering
The need for crop materials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

GEOGRAPHY OF MAGNETIC TECHNOLOGIES



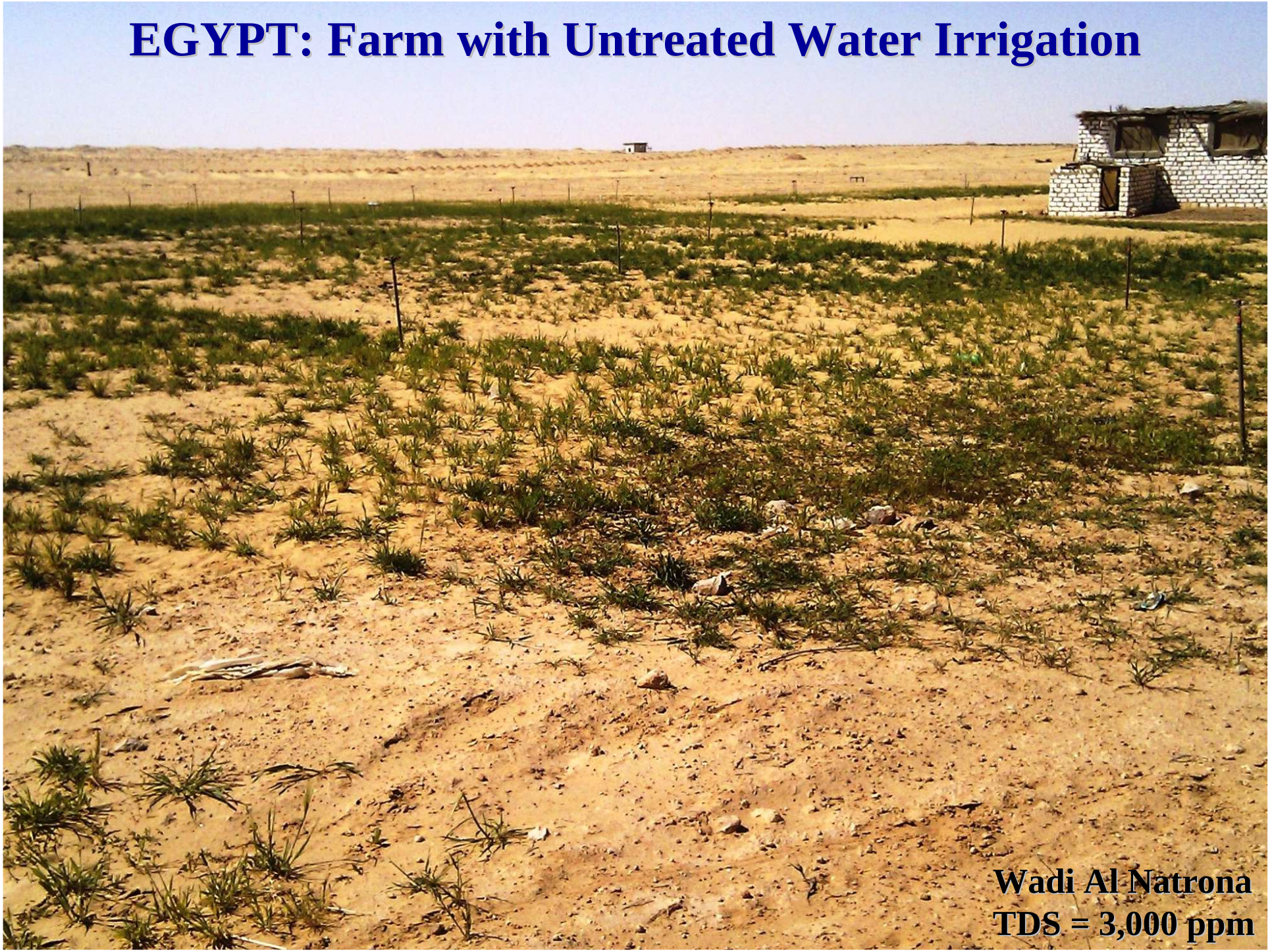

12/03/

EGYPT: Cactus Farm with Untreated Water Irrigation

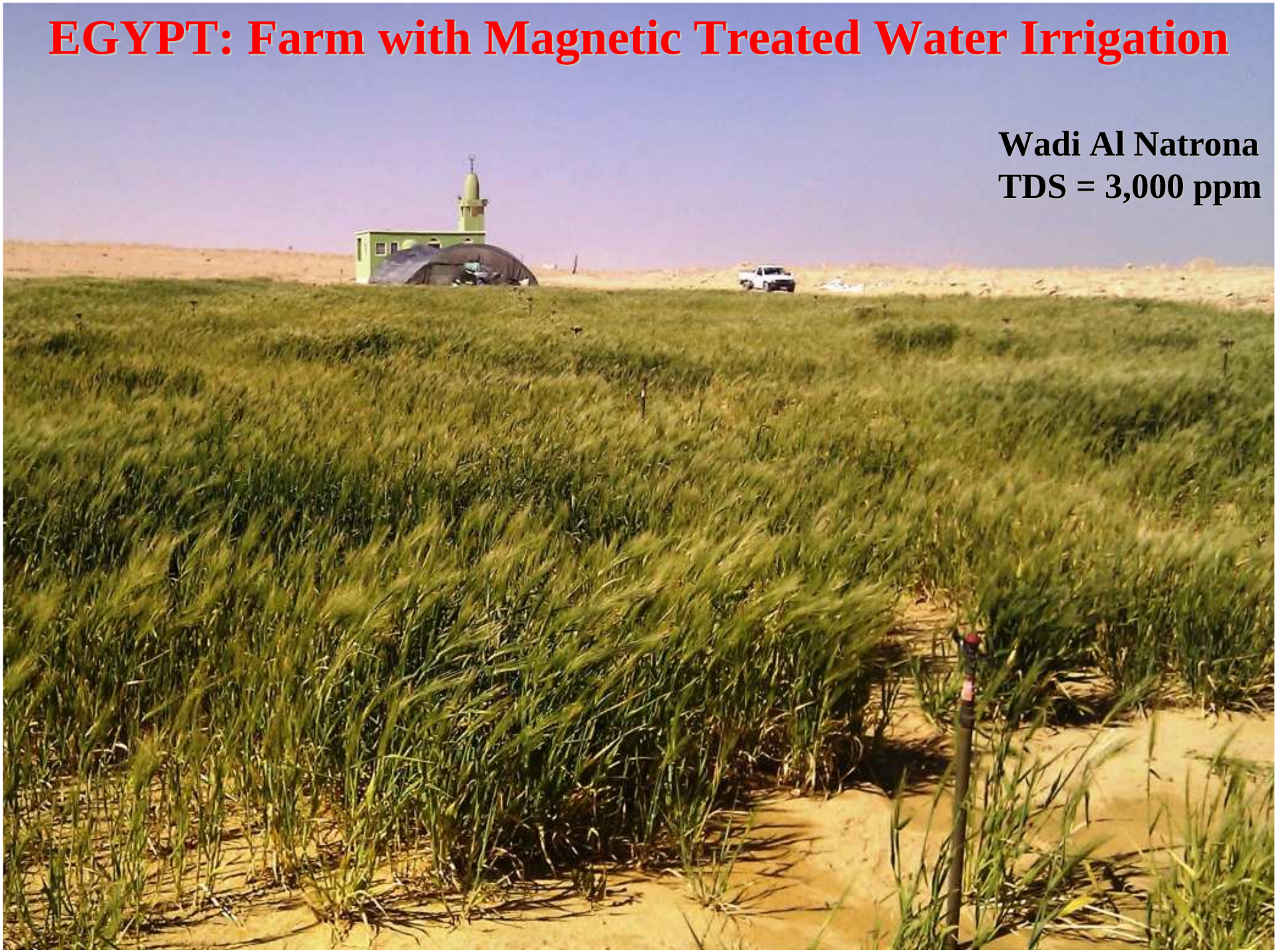


EGYPT: Cactus Farm with Magnetic Treated Water Irrigation

EGYPT: Farm with Untreated Water Irrigation



EGYPT: Farm with Magnetic Treated Water Irrigation



EGYPT: Farm with Magnetic Treated Water Irrigation

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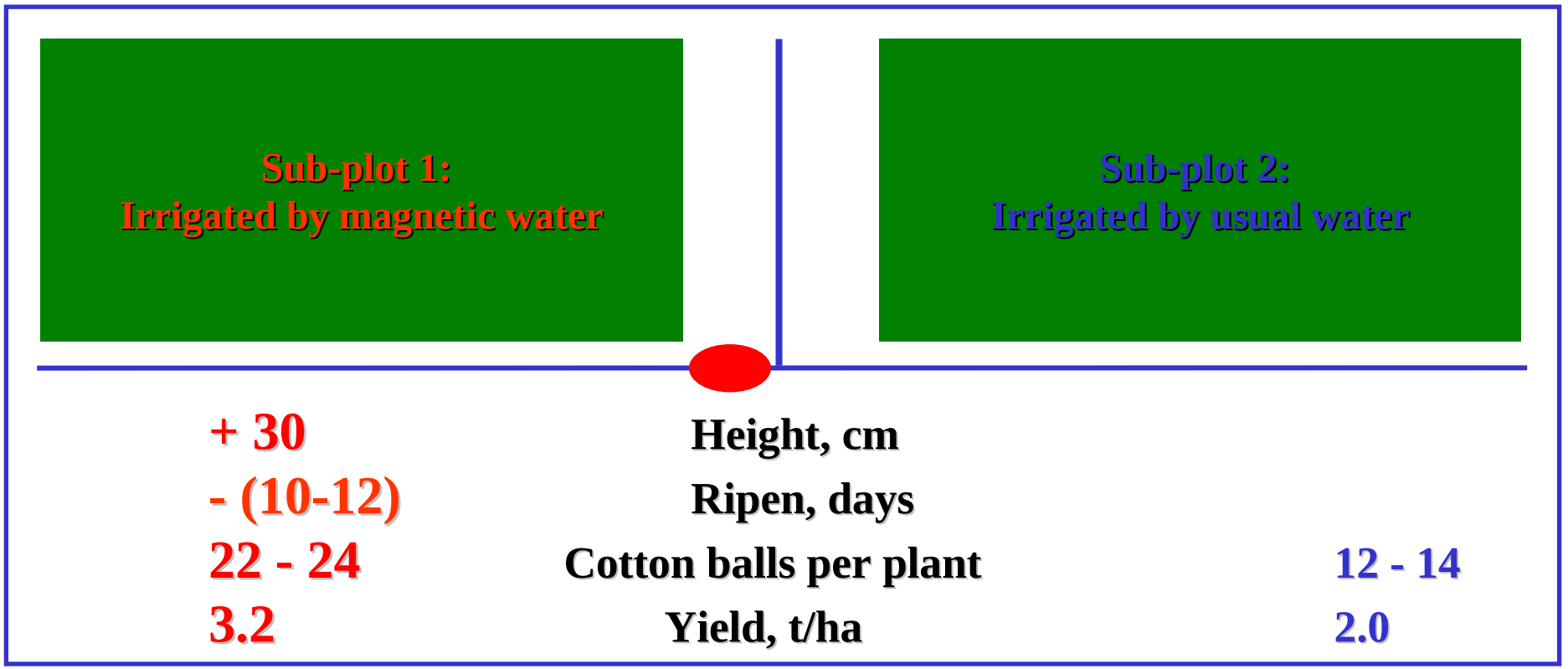
e-mail: abahgat2007@gmail.com

Excerpt from Report of the Water Problem Institute at the Science Academy of the Republic of the Uzbekistan on Applications of Magnetic Technologies for Irrigation of Cotton Plants



Heading from the foregoing, it can be seen that the one-year testing of the magnetic system for irrigation of cotton plants has proved to be extremely efficient. Furthermore, the said magnetic equipment required neither technical maintenance nor special training to handle it for the operation period.

It is quite natural that a broad range of magnetic applications as suggested by Magnetic Technologies LLC (UAE) should considerably enhance the capacities of irrigation farming.

The 3rd International Conference on Water Resources and Arid Environments (2008)
the 1st Arab Water Forum

Application of Magnetic Technologies in Correcting Under Ground Brackish Water for Irrigation in the Arid and Semi-Arid Ecosystem

M. M. Selim

Field Crops Research Department,
National Research Centre,
Cairo, Egypt

Seasons 2002/2003 – 2004/2005

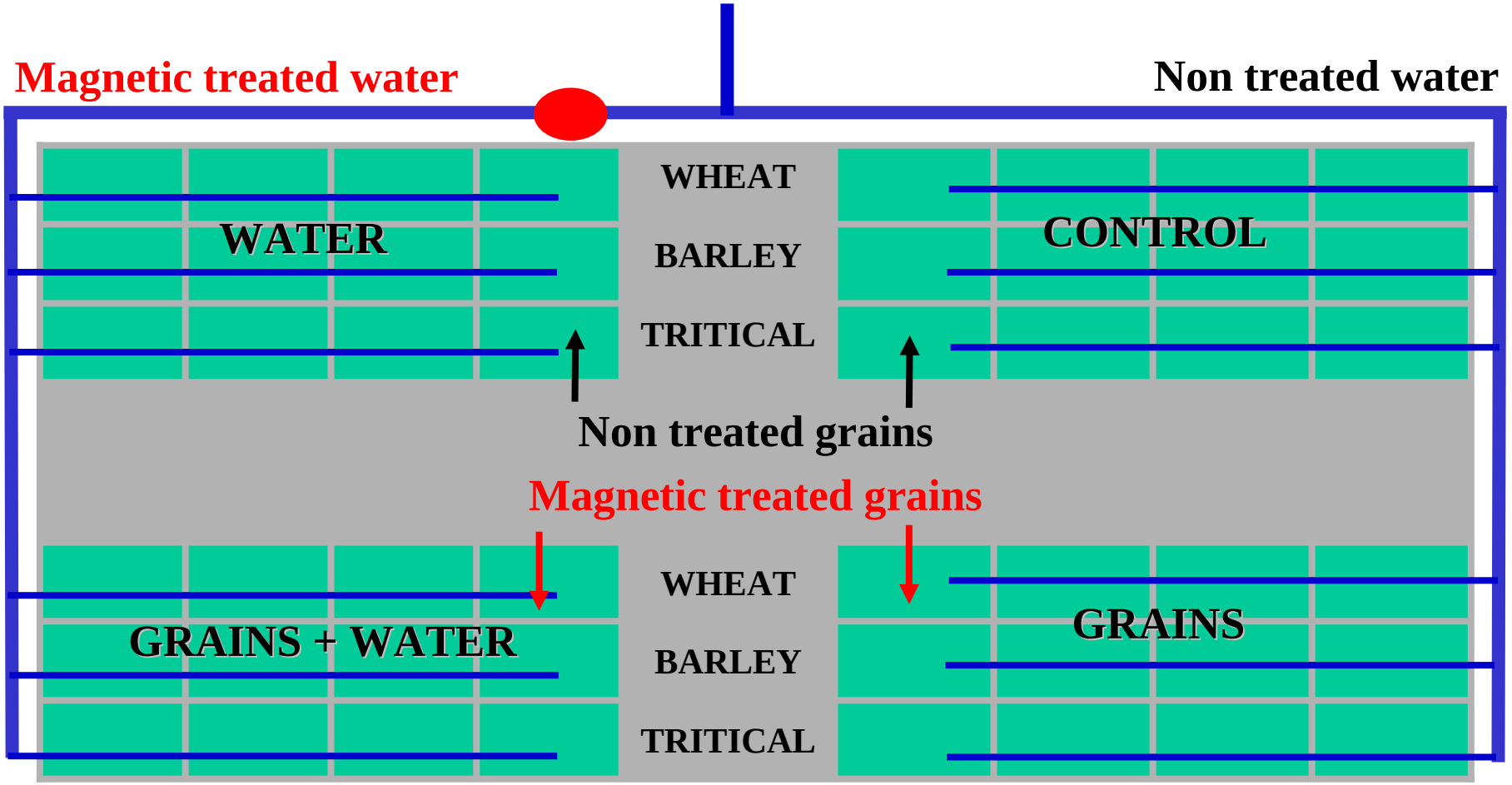
Mechanical and chemical analysis of the experimental soil sites

SOIL DEPTH, cm	pH	SALINITY		PARTICLE SIZE DISTRIBUTION, %				TEXTURE	$CaCO_3$	OM
		EC, dS/m	%	SAND		SILT	CLAY		%	
				COARSE	FINE					
0-30	8.6	15.0	0.96	78.2	15.1	3.3	3.4	Sand	12.3	1.45
30-60	9.1	13.5	0.87	80.9	12.4	4.0	2.7	Sand	7.0	1.11

Chemical analysis (means) of the under ground water used in irrigation

SALINITY		pH	CATIONS, meq/L				ANIONS, meq/L				SAR	RSC
TDS, ppm	EC, dS/m		Ca^{++}	Mg^{++}	Na^{+}	K^{+}	CO_3^{--}	HCO_3^{-}	Cl^{-}	SO_4^{--}		
4330	6.46	8	14.67	11.37	37.42	1.1	0.0	11.47	31.05	22.11	10.37	-14.6

DISTRIBUTION OF EXPERIMENTAL FIELD



EFFECT OF MAGNETIC TREATMENT ON GERMINATION OF WHEAT, BARLEY AND TRITICAL GRAINS

(NATIONAL RESEARCH CENTRE, EGYPT)

MAGNETIC TREATMENT	CROP	GERMINATION PERCENTAGE					
		LABORATORY			FIELD		
		6 days	9 days	12 days	6 days	9 days	12 days
CONTROL	Wheat	34	50	70	65	70	86
	Barley	40	60	80	69	80	86
	Tritical	56	72	80	76	64	86
GRAINS	Wheat	56	70	88	68	76	88
	Barley	60	76	92	74	82	94
	Tritical	64	78	96	79	84	92
WATER	Wheat	60	78	84	68	79	90
	Barley	70	80	88	73	82	92
	Tritical	74	80	88	78	86	95
GRAINS + WATER	Wheat	78	100	100	66	84	95
	Barley	76	100	100	75	84	95
	Tritical	80	100	100	80	89	96

EFFECT OF MAGNETIC TREATMENT ON MICRONUTRIENT CONCENTRATION IN WHEAT, BARLEY AND TRITICAL GRAINS

(NATIONAL RESEARCH CENTRE, EGYPT)

MAGNETIC TREATMENT	CROP	MICRONUTRIENT CONCENTRATION, ppm		
		Fe	Zn	Mn
CONTROL	Wheat	162	70	57
	Barley	140	72	60
	Tritical	144	73	58
GRAINS	Wheat	260 (60)	83 (19)	62 (9)
	Barley	197 (41)	80 (11)	68 (13)
	Tritical	154 (7)	78 (7)	64 (10)
WATER	Wheat	178 (10)	88 (26)	65 (14)
	Barley	174 (24)	79 (10)	67 (12)
	Tritical	170 (18)	84 (15)	77 (33)
GRAINS + WATER	Wheat	290 (79)	90 (29)	70 (23)
	Barley	210 (50)	88 (22)	72 (20)
	Tritical	214 (49)	84 (15)	77 (33)

EFFECT OF MAGNETIC TREATMENT ON WHEAT, BARELY AND TRITICAL CROPS YIELD AND YIELD COMPONENT PARAMETERS (MEANS OF THREE SEASONS)

(FIELD EXPERIMENT. NATIONAL RESEARCH CENTRE, EGYPT)

MAGNETIC TREATMENT	CROP	YIELD COMPONENT PARAMETERS			YIELD, t/feddan	
		No of spike per m^2	Spike length, cm	No of grains per spike	GRAIN	BIOMASS
CONTROL	Wheat	119	6	25	1.248	2.483
	Barley	124	7	27	1.334	2.543
	Tritical	152	9	29	1.499	3.473
GRAINS	Wheat	150 (26)	7	30 (20)	1.360 (9)	2.843 (14)
	Barley	155 (25)	8	32 (19)	1.465 (10)	2.897 (14)
	Tritical	168 (11)	9	31 (7)	1.594 (6)	3.564 (3)
WATER	Wheat	160 (34)	7	35 (40)	1.387 (11)	3.045 (23)
	Barley	174 (40)	8	38 (41)	1.532 (15)	2.996 (18)
	Tritical	185 (22)	9	34 (17)	1.599 (7)	3.762 (8)
GRAINS + WATER	Wheat	190 (60)	8	39 (34)	1.432 (15)	3.245 (31)
	Barley	200 (61)	8	40 (48)	1.688 (27)	3.231 (27)
	Tritical	220 (45)	9	36 (24)	1.653 (10)	3.896 (12)

ECONOMIC EFFECT OF MAGNETIC TREATMENT

State purchase price (2008) of wheat, USD/ton	469
Effect of magnetic treatment, ton/hectare	0.410
Cost of magnetic device A 600, USD	4,600
Square of irrigated field, hectares	40

RESULT, ton/field **0.410 * 40 = 16.4**

PROFIT, USD **16.4 * 469 = 7,691**

PAYBACK PERIOD, seasons **4,600 ÷ 7,961 = 0.6**

NET PROFIT at first season, USD **7,961 – 4,600 = 3,361**

AGRICULTURE AND BIOLOGY JOURNAL OF NORTH AMERICA

Magnetic water application for improving wheat crop production

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Botany Dept., Princess Nora Bint Abdul Rahman University,
Riyadh, KSA

Seasons 2008/2009 – 2009/2010

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.*

Magnetic water application for improving wheat crop production

RESULTS

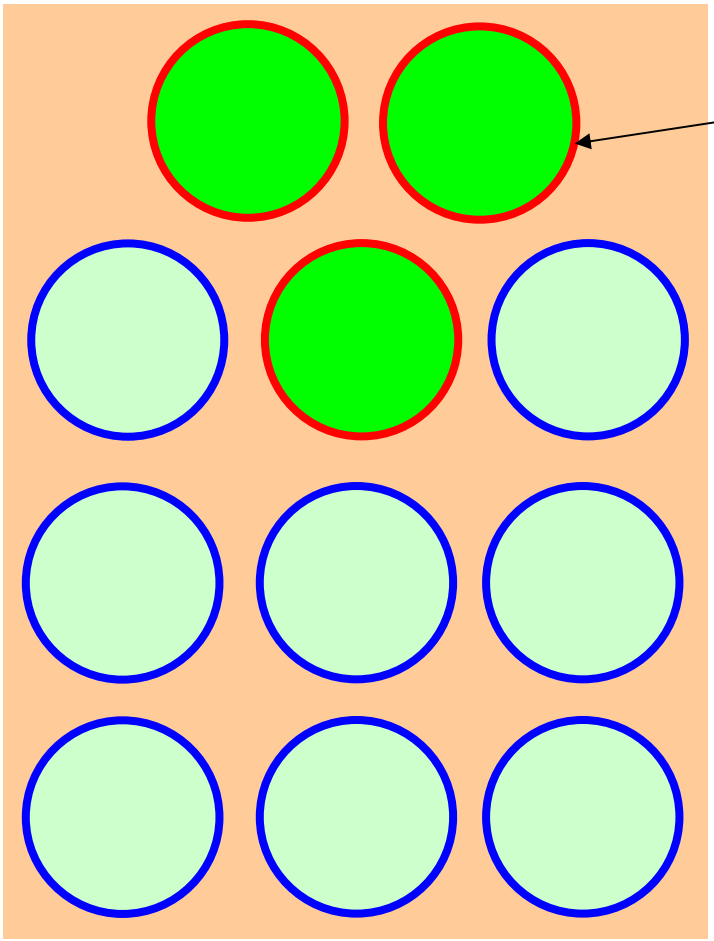
1. Wheat plants irrigated with magnetic water exhibited highly significant increases in plant height, fresh and dry weights per plant over the control. On average over both seasons, these increases reached to 13.85, 48.36 and 39.25 % at the above parameters, respectively. Also, the water content showed a slight significant increase (2.07 %) as compared to control plant.

2. Magnetic treated water significantly increased all photosynthetic pigment (Chl a, Chl b, Chl a+b, carotenoids and total pigment content) over the control. The percent of increments reached to 17.6, 11.37, 15, 25, 3.03 and 15.25 % in the above parameters, respectively.

3. Magnetic water treatment induced significant increases in total indole and phenol contents as compared to control plant. The percent of increase reached to more than two folds in indole and to 33.59 % in phenol over the control value.

4. Irrigation wheat plants with magnetized water induced significant marked increase in all yield and yield components compared to control treatment. The increases reached to 24.56, 31.33 and 27.68 % in seed, straw and biological yield per teller over the control (average two seasons).

LIBYA: wheat field with center pivot irrigation



Magnetic Treated Water

315 – 318 t

200 - 244 t

170 cm

100 cm

20 - 22

10 - 12

ECONOMIC EFFECT OF MAGNETIC TREATMENT

State purchase price per 1 ton of wheat, USD	469
Cost of magnetic device A 600, USD	4,600

RESULT, ton/plot	**315 – 244 = 71**
PROFIT, USD/plot	**71 * 469 = 33,299**
PAYBACK PERIOD, seasons	**4,600 ÷ 33,299 = 0.138**
NET PROFIT at first season, USD/plot	**33,299 – 4,600 = 28,699**

EGYPT: Synergistic Effect of Nile-fertile® Application and Magnetic Water Treatment on Crop Yield

Treatments		Wheat yield, ton/fed		Tomatoes yield, ton/fed	
Water	Soil	Grains	Total	Ground	Climbing
Untreated	control	1.96	5.52	16.5	35.0
	Nile-fertile®	2.36	7.88	19.8	43.8
Magnetic treated	control	2.44	7.76	20.7	45.0
	Nile-fertile®	**2.92**	**9.48**	**24.5**	**54.0**

EGYPT: Synergistic Effect of Nile-fertile® & Magnetic Treatment on Growth and Plant Setting of Tomatoes

Fertilizer +Water Treatment	**Nile-Fertile® + MTW**	NPK + MTW	NPK + NW
Yield, t/a	**54**	**45**	35

- **Magnetic treated saline water undergoes several changes in its physical properties.**
- **3 main functions for Magnetic treated water in soil:**

  1 - Removal of excess soluble salts,

  2 - Lowering pH values of soil layers,

  3 - Dissolving slightly soluble components such as phosphates, carbonates and sulfates.
- **Magnetic treated water also enhances nutrient mobility in soil, increases extraction and uptake of P, K, N and Fe by plants.**
- **Magnetic treated water increases the efficiency of added fertilizers and will help to cut down fertilizer requirements.**

EFFECT OF MAGNETIC TREATMENT ON TOMATO AND PEPPER PLANTS

D. A. Selim

FUCULTY OF AGRICULTURE,
MINUFIYA UNIVERSITY,
SHIBIN EL-KOM,EGYPT

Some physical and chemical properties of soil used

SP, %	Particle size distribution <2 mm, %					pH	EC, dS/m at 25°C	Soil paste extract analysis meq/l							
								Anions				Cations			
	Coarse sand	Fine sand	Silt	Clay	Texture grade			$CO_2^=$	HCO_3^-	Cl^-	$SO_4^=$	Ca^{++}	Mg^{++}	Na^+	K^+
48.2	2.31	41.1	29	27.6	Clay loam	7.9	2.5	-	4.5	8.2	19.3	14.4	6.46	10.8	0.36

EFFECT OF MAGNETIC TREATMENT ON GERMINATION OF TOMATO AND PEPPER SEEDS

(MINUFIYA UNIVERSITY, EGYPT)

MAGNETIC TREATMENT	GERMINATION, %	MEAN LONG PERIOD OF GERMINATION, day	SPEED OF GERMINATION	GERMINATION INDEX	COEF. OF VELOCITY (CV%)
TOMATO SEEDS					
Control	85.000	7.041	5.051	5.633	14.268
Seeds	94.333	6.367	5.447	6.633	15.782
Water	100.000	6.259	5.477	8.033	15.991
Seeds + Water	100.000	6.567	5.422	6.900	15.234
PEPPER SEEDS					
Control	46.667	19.611	5.481	6.400	5.341
Seeds	83.333	16.522	7.504	11.900	6.206
Water	83.333	13.722	8.442	11.333	7.331
Seeds + Water	80.000	16.467	7.457	10.500	6.093

EFFECT OF MAGNETIC TREATMENT ON YIELD ATTRIBUTES OF TOMATO PLANTS

(MINUFIYA UNIVERSITY, EGYPT)

MAGNETIC TREATMENT	FRUIT WEIGHT (g)	No. FRUIT PER PLANT	FRUIT YIELD, g/plant	FRUIT YIELD, kg/m²	STRAW YIELD, g/plant	TITRATABLE ACIDITY, %	VIT. C, mg ascorbic acid per 100g fruit weight	TSS, %
FIRST SEASON								
Control	8.231	30	246.938	3.495	7.75	0.045	36.036	5.6
Seed	12.584 53	50 67	629.203 155	8.906 155	10.036 29	0.026	42.042 17	6.6
Water	12.611 53	57 90	718.836 191	10.175 191	11.041 42	0.038	48.048 33	7.0
Seed + Water	10.239 24	44 47	450.531 82	6.377 82	11.616 50	0.038	48.048 33	6.8
SECOND SEASON								
Control	7.982	8	63.853	0.904	4.783	0.083	36.036	5.2
Seed	9.442 18	20 150	188.842 196	2.673 196	5.761 20	0.064	42.042 17	6.4
Water	14.141 77	24 200	339.372 431	4.804 431	6.710 40	0.051	54.054 50	7.4
Seed + Water	14.388 80	25 212	359.705 463	5.091 463	6.959 45	0.077	48.048 33	6.6

Efficiency (%) = (Magnetic Treatment – Control) / Control

EFFECT OF MAGNETIC TREATMENT ON YIELD ATTRIBUTES OF PEPPER PLANTS
(MINUFIYA UNIVERSITY, EGYPT)

MAGNETIC TREATMENT	FRUIT WEIGHT (g)	No. FRUIT PER PLANT	FRUIT YIELD, g/plant	FRUIT YIELD, kg/m^2	STRAW YIELD, g/plant	TITRATABLE ACIDITY, %	VIT. C, mg ascorbic acid per 100g fruit weight	TSS, %
FIRST SEASON								
Control	12.758	9	114.818	8.120	6.942	0.486	24.02	5.8
Seed	12.939 1	13 44	168.203 46	11.896 46	9.212 33	0.435	66.04 175	7
Water	20.385 60	21 133	428.083 273	30.275 273	8.628 24	0.469	60.06 150	6.8
Seed + Water	21.937 72	27 200	592.274 416	41.886 416	11.495 66	0.384	72.07 200	7.8
SECOND SEASON								
Control	12.566	10	125.66	8.887	4.194	0.653	48.05	6
Seed	19.550 56	22 120	430.1 242	30.417 242	6.877 64	0.576	60.06 25	7.8
Water	15.08 20	14 40	211.124 68	14.931 68	5.128 22	0.512	60.06 25	7.8
Seed + Water	20.016 59	25 150	500.40 298	35.80 303	14.442 244	0.512	120.12 150	8

Efficiency (%) = (Magnetic Treatment – Control) / Control

EFFECT OF MAGNETIC TREATMENT ON CONCENTRATION OF SOME ELEMENTS IN TOMATO AND PEPPER FRUITS

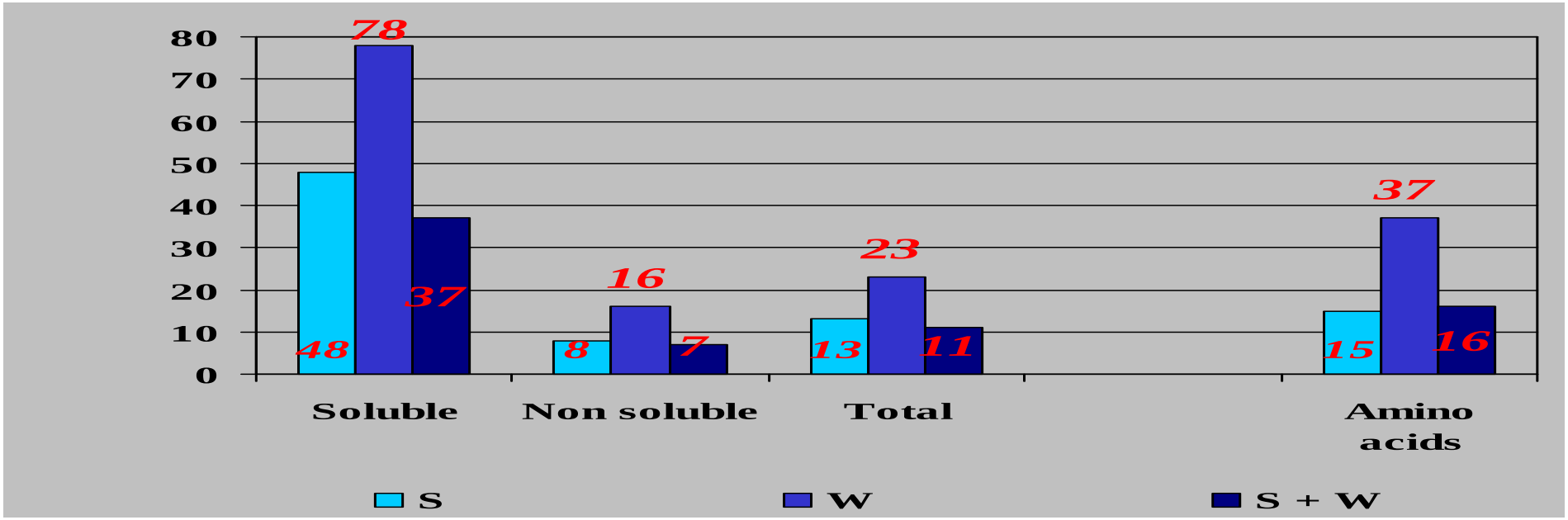
(MINUFIYA UNIVERSITY, EGYPT)

MAGNETIC TREATMENT	NITROGEN, %	PHOSPHORUS, %	POTASSIUM, %	Fe, ppm	Zn, ppm	Mn, ppm
TOMATO FRUITS						
Control	1.40	0.615	1.84	191.2	24	126
Seed	1.65	0.623	1.88	366.0 91	26.5 10	137 9
Water	1.68	0.761	1.92	486.2 154	59.7 149	181 44
Seed + Water	1.45	0.695	1.97	379.8 99	37.5 56	170 35
PEPPER FRUITS						
Control	1.563	0.396	1.005	295.3	29.2	45
Seed	1.575	0.557	1.240	304.1 3	29.7 2	55.67 24
Water	1.875	0.514	1.082	305.1 3	33.0 13	56.33 25
Seed + Water	2.188	0.475	1.321	544.9 85	47.5 63	62.32 38

EFFECT OF MAGNETIC TREATMENT ON CHEMICAL CONSTITUENTS IN TOMATO FRUITS

(MINUFIYA UNIVERSITY, EGYPT)

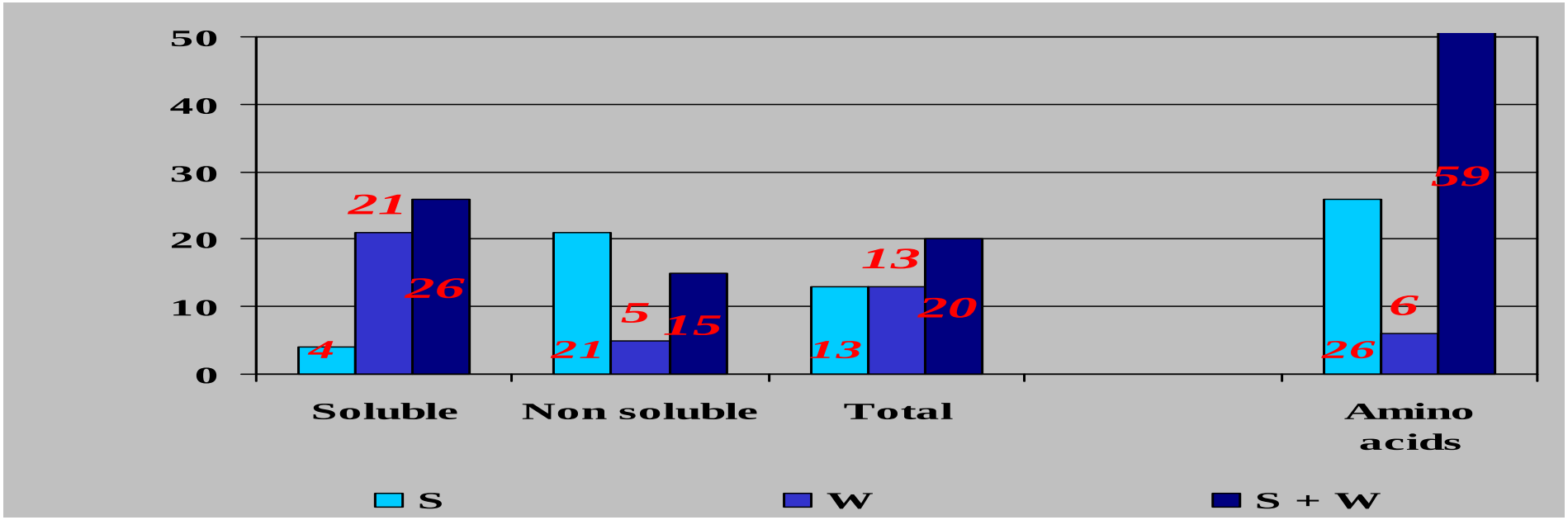
MAGNETIC TREATMENT	CARBOHYDRATES, mg/g of dry weight			TOTAL PROTEIN, %	AMINO ACIDS, mg/g of dry weight
	SOLUBLE	NON SOLUBLE	TOTAL		
Control	21.000	154.695	175.695	8.61	27.540
Seed	31.000	167.125	198.125	10.148	31.590
Water	37.375	179.188	216.563	10.302	31.800
Seed + Water	28.750	166.250	195.000	8.981	31.860



EFFECT OF MAGNETIC TREATMENT ON CHEMICAL CONSTITUENTS IN PEPPER FRUITS

(MINUFIYA UNIVERSITY, EGYPT)

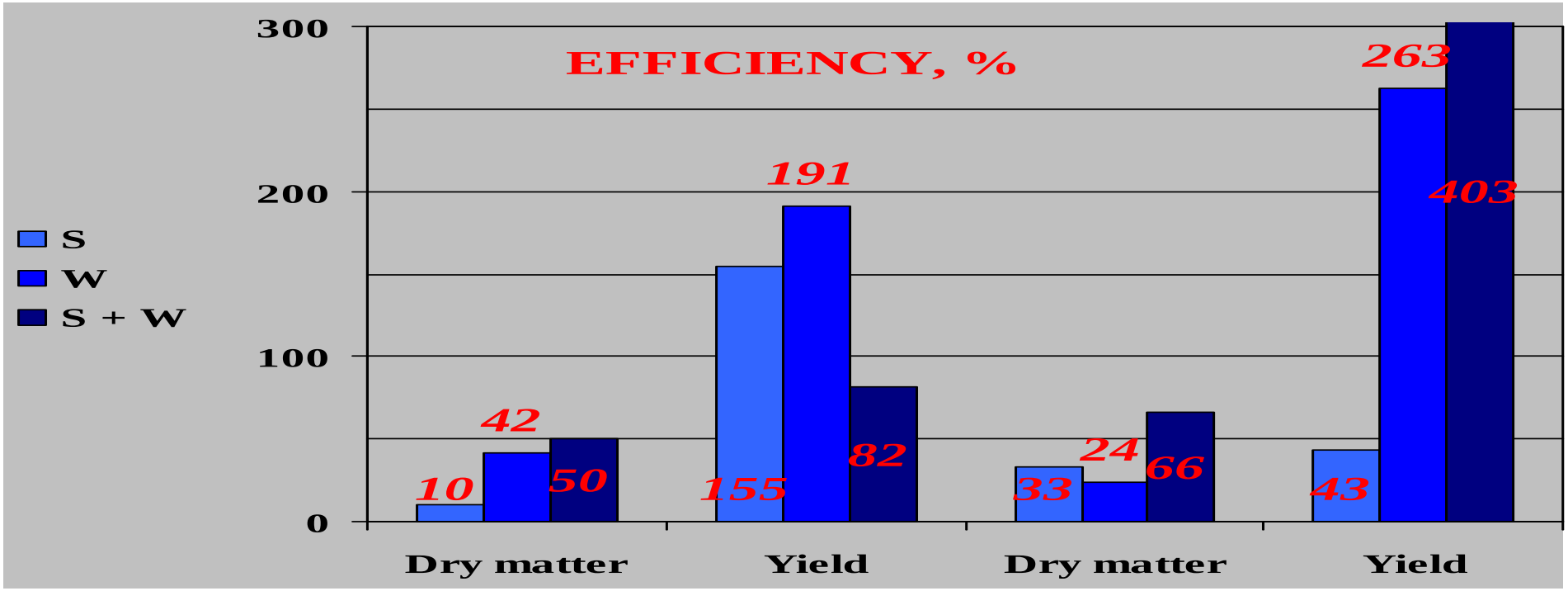
MAGNETIC TREATMENT	CARBOHYDRATES, mg/g of dry weight			TOTAL PROTEIN, %	AMINO ACIDS, mg/g of dry weight
	SOLUBLE	NON SOLUBLE	TOTAL		
Control	120.000	138.125	258.125	9.766	20.925
Seed	125.000	167.813	292.813	9.766	26.325
Water	145.000	145.625	290.625	11.719	22.140
Seed + Water	150.750	158.469	309.219	13.672	33.210



EFFECT OF MAGNETIC TREATMENT ON WATER USE EFFICIENCY

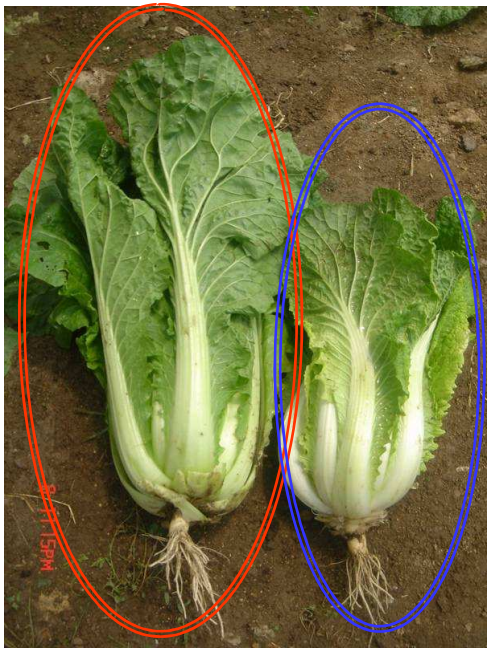
(MINUFIYA UNIVERSITY, EGYPT)

MAGNETIC TREATMENT	WATER USE EFFICIENCY, g/kg H_2O			
	TOMATO PLANTS		PEPPER PLANTS	
	Dry matter	Yield	Dry matter	Yield
Control	1.14	36.32	1.78	30.21
Seed	1.25	92.53	2.36	43.13
Water	1.62	105.71	2.21	109.76
Seed + Water	1.71	66.26	2.95	151.87



ERITREA: Evaluation of Magnetic Technology for Cabbage Production

	Magnetic			Control		
	Max	Min	Average	Max	Min	Average
Weight	1.9kg	1.2kg	1.7kg	1.1kg	0.7kg	0.98kg
Main Root Length, cm	5.8cm	3.4cm	4.53cm	5cm	3.2cm	4.03cm
Total Root Length, cm	25cm	12.1cm	16.1cm	16.2cm	10.8cm	12.65cm



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Irrigation with magnetized water enhances growth, chemical constituent and yield of chickpea

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Riyadh, KSA

Seasons 2008/2009 – 2009/2010

Irrigation with magnetized water enhances growth, chemical constituent and yield of chickpea

Effect of irrigation with magnetized water on chickpea 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)	**20.40**	**23.60**	*	**24.20**	**26.20**	***ns***
Fresh weight (g/plant)	**1.39**	**1.58**	**	**1.55**	**1.73**	**
Dry weight (g/plant)	**0.32**	**0.35**	***ns***	**0.37**	**0.38**	*
Water contents (%)	**76.98**	**77.85**	***ns***	**75.93**	**77.93**	***ns***

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

Irrigation with magnetized water enhances growth, chemical constituent and yield of chickpea

Effect of irrigation with magnetized water on chickpea photosynthetic pigments, total phenol and total indole contents at 55 days after sowing

		Untreated tap water	Magnetic treated water	*t-sign*
Photosynthetic pigments (mg/100 g fresh weight)	**Chlorophyll a**	5.72	7.24	**
	Chlorophyll b	3.07	3.74	**
	Chlorophyll a+b	8.79	10.98	**
	Carotenoids	4.48	4.50	***ns***
	Total pigments	13.27	15.48	**
Total indole (µg/100 g fresh weight)		9.00	9.80	**
Total phenol (mg/100 g fresh weight)		312.29	434.13	**

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

Irrigation with magnetized water enhances growth, chemical constituent and yield of chickpea

Effect of irrigation with magnetized water on chickpea 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)	28.40	35.20	**	32.40	41.80	**
Brunches (No/plant)	2.47	3.23	**	3.20	4.40	**
Pods (No/plant)	6.60	8.81	*ns*	7.60	11.50	**
Pods weight (g/plant)	1.86	2.59	**	1.96	2.76	**
Seeds (No/plant)	6.89	9.50	**	7.13	10.20	**
100-grain weight (g)	18.16	19.03	**	19.13	19.17	*ns*
Seeds yield (g/plant)	1.36	1.77	**	1.43	2.10	**
Straw yield (g/ plant)	1.43	1.91	**	1.98	2.94	**
Biological yield (g/plant)	2.79	3.68	**	3.41	5.04	**

Irrigation with magnetized water enhances growth, chemical constituent and yield of chickpea

RESULTS

1. Irrigation chickpea plant with magnetized water significantly increased tested growth parameters as compared to pots which irrigated with tap water. The improvement over control treatment reached to 11.98, 12.51, 5.76, and 1.88 % for plant height, fresh and dry weight (g/plant) and percentage of water contents, respectively as average of two seasons.

2. Significant increases in photosynthetic pigments (chlorophyll a, chlorophyll b, total chlorophyll a+b and carotenoids), total phenols and total indole in shoot plants were recorded from irrigated plants with magnetized water as compared to irrigated plants with tap water. The increases in these parameters reached to 26.56, 21.83, 24.91, 42.00, 16.64, 39.22 and 8.66 %, respectively over control treatment.

3. Irrigation chickpea plants with magnetic treated water significantly increased all yield and yield components compared to control treatment. The percent of increments reached to 38.64, 41.03 and 39.85 in seed, straw and biological yield per plant respectively as average of both seasons.

WORLD APPLIED SCIENCES JORNAL

Response of Growth, Yield, Yield Components and Some Chemical Constituents of Flax for Irrigation with Magnetized and Tap Water

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Seasons 2008/2009 – 2009/2010

Response of Growth, Yield, Yield Components and Some Chemical Constituents of Flax for Irrigation with Magnetized and Tap Water

Effect of irrigation with magnetized water on flax 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)	**24.00**	**25.00**	***ns***	**26.20**	**28.26**	**
Fresh weight (g/plant)	**0.61**	**0.71**	**	**0.79**	**0.93**	**
Dry weight (g/plant)	**0.15**	**0.16**	***ns***	**0.21**	**0.24**	***ns***
Water contents (%)	**75.47**	**77.09**	***ns***	**74.10**	**74.19**	***ns***

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

Response of Growth, Yield, Yield Components and Some Chemical Constituents of Flax for Irrigation with Magnetized and Tap Water

Effect of irrigation with magnetized water on flax photosynthetic pigments, total phenol and total indole contents at 55 days after sowing

		Untreated tap water	Magnetic treated water	*t-sign*
Photosynthetic pigments (mg/100 g fresh weight)	Chlorophyll a	6.13	7.20	**
	Chlorophyll b	2.36	3.96	**
	Chlorophyll a+b	8.49	11.16	**
	Carotenoids	4.60	4.99	*ns*
	Total pigments	16.98	22.32	**
Total indole (µg/100 g fresh weight)		1.20	1.59	**
Total phenol (mg/100 g fresh weight)		208.19	246.07	**

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

Response of Growth, Yield, Yield Components and Some Chemical Constituents of Flax for Irrigation with Magnetized and Tap Water

Effect of irrigation with magnetized water on flax 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)	56.80	58.20	*	58.30	61.40	**
Technical length (cm)	43.40	48.80	*	48.50	51.60	**
Based branches (No/plant)	2.40	2.80	***ns***	2.60	2.84	***ns***
Fruit branches (No/plant)	5.60	6.00	***ns***	6.20	6.44	***ns***
Capsules (No/plant)	9.20	10.80	***ns***	10.40	11.60	***ns***
Capsules weight (g/plant)	0.44	0.53	*	0.53	0.57	***ns***
Seeds (No/capsule)	8.00	8.40	***ns***	8.26	9.28	**
Seeds (No/plant)	73.60	90.72	**	85.68	107.46	**
100-seed weight (g)	0.68	0.70	***ns***	0.69	0.72	***ns***
Seeds yield (g/plant)	0.32	0.35	*	0.34	0.37	***ns***

Response of Growth, Yield, Yield Components and Some Chemical Constituents of Flax for Irrigation with Magnetized and Tap Water

RESULTS

1. Irrigation flax plant with magnetized water significantly increased plant height, fresh & dry weight and water content over the tap water irrigation. An average of both seasons the increase reached to 6.01, 16.62, 12.58, and 1.48 % in above mentioned characters, respective. These results may be attributed to the role of magnetic water treatment in increasing absorption and assimilation of nutrients consequently increasing plant growth.

2. Magnetic water treatment showed the stimulatory effect on all pigment fractions (chlorophyll a, chlorophyll b, total chlorophyll a+b, carotenoids and total pigment) and also promotive effect on total indole and phenol. The percent of increase reached to 17.46, 67.80, 31.45, 8.55, 31.45, 18.20 and 33.55 % in the above parameters, respectively over control treatment.

3. Irrigation flax plant with magnetic treated water increased all yield characters over the untreated control by 3.98, 9.42, 12.95, 5.51, 14.46, 14.00, 8.67, 24.34, 9.10 and 3.64 %, respectively as average of both seasons.

4. Magnetic water treatment has stimulatory effects of growth, photosynthetic pigment, growth promoters and protein synthesis consequently increased yield components of flax plant. So, we could pay more attention to this cheep and safe tool in increasing the production of our economic crops.

American-Eurasian Journal of Agricultural & Environmental Sciences

Magnetic Water Technology to Increase Growth, Yield and Constituents of Lentil under Greenhouse Conditions

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Seasons 2008/2009 – 2009/2010

Magnetic Water Technology to Increase Growth, Yield and Constituents of Lentil under Greenhouse Conditions

Effect of irrigation with magnetized water on lentil 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)	**15.20**	**18.40**	*	**17.16**	**21.00**	**
Fresh weight (g/plant)	**0.56**	**0.66**	**	**0.67**	**0.79**	*
Dry weight (g/plant)	**0.17**	**0.19**	**	**0.24**	**0.27**	*ns*
Water contents (%)	**70.12**	**70.61**	*ns*	**64.18**	**65.49**	*ns*

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

Magnetic Water Technology to Increase Growth, Yield and Constituents of Lentil under Greenhouse Conditions

Effect of irrigation with magnetized water on lentil photosynthetic pigments, total phenol and total indole contents at 55 days after sowing

		Untreated tap water	Magnetic treated water	*t-sign*
Photosynthetic pigments (mg/100 g fresh weight)	Chlorophyll a	3.71	4.22	*
	Chlorophyll b	1.25	1.80	*
	Chlorophyll a+b	4.96	6.02	*
	Carotenoids	4.77	4.90	*ns*
	Total pigments	9.92	12.04	*
Total phenol (mg/100 g fresh weight)		179.18	215.02	**
Total indole (µg/100 g fresh weight)		0.83	2.06	**

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

Magnetic Water Technology to Increase Growth, Yield and Constituents of Lentil under Greenhouse Conditions

Effect of irrigation with magnetized water on lentil 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)	16.40	20.60	**	23.20	25.60	*
Brunches (No/plant)	2.71	3.60	*	3.32	3.92	*
Pods (No/plant)	4.78	6.40	**	6.76	8.40	**
Pods weight (g/plant)	0.63	0.72	*	0.74	0.88	**
Seeds (No/plant)	8.75	10.50	**	10.66	12.34	**
100-seeds weight (g)	5.20	5.62	**	5.45	5.69	**
Seeds yield (g/plant)	0.52	0.66	**	0.63	0.78	**
Straw yield (g/ plant)	0.54	0.71	**	0.75	0.91	*
Biological yield (g/plant)	1.06	1.37	**	1.38	1.69	**

Magnetic Water Technology to Increase Growth, Yield and Constituents of Lentil under Greenhouse Conditions

RESULTS

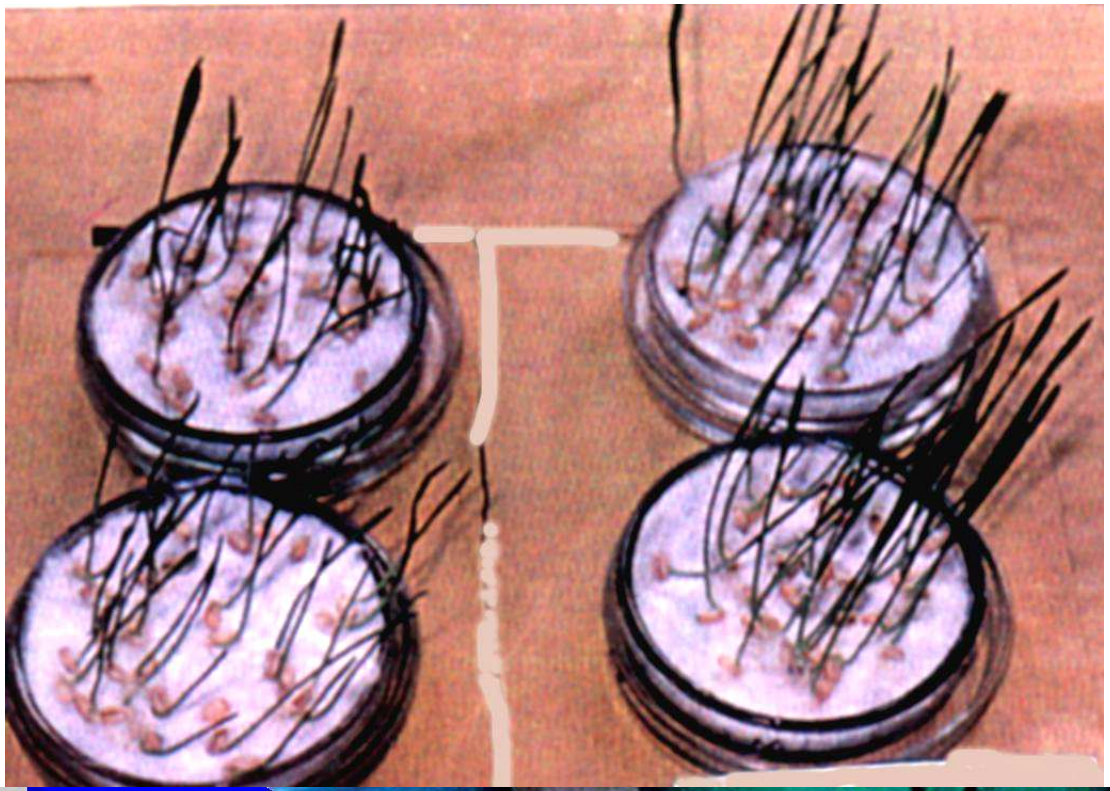
1. Irrigation lentil plant with magnetized water significantly increased plant height, fresh and dry weight over the tap water irrigation. An average of both seasons the increase reached to 21.75, 18.18 and 15.05 % in above mentioned characters, respective. The stimulative effect of magnetized water on growth parameters may be attributed to the induction of cell metabolism and mitosis.

2. Magnetized water significantly increased chemical constituents in fresh shoots i.e., chlorophyll a, chlorophyll b, total chlorophyll a+b, carotenoids, total pigment, total phenols and total indole contents by 13.58, 44.67, 21.4, 2.7, 21.4, 20 and 148.19 % in the above parameters respectively.

3. Irrigation lentil plant with magnetic treated water showed promotive effect of this tool in increasing all yield characters (number of brunches, pods and seeds per plant and weight of pods, seeds and straw and biological yields per plant and 100-seeds weight). An average of both seasons the percent of increase reached to 25.48, 29.08, 17.03, 17.88, 24.98, 26.69, 25.82, and 6.24 %, for above mentioned parameters, respectively.

Magnetizing seeds for better germination and seedling emergence of wheat

Normal



Magnetized

INDIA: Magnetic Treatment of Seeds

ITC Demonstration & Education Farm, Annasagar Village,
Mulugu Mandal, Medak Dt, Andhrapradesh

Increase in germination of capsicum seeds about 8 %

INDIA: Magnetic Treatment of Irrigation Water

ITC Demonstration & Education farm, Annasagar Village,
Mulugu Mandal, Medak Dt, Andhrapradesh

Preliminary Report

Crop:	Capsicum Heera (Seminis seeds)
Magnetic treated water:	10 rows
Normal water:	10 rows
Buffer:	3 rows
Date of Planting:	03.03.10
Date of Observation:	05.06.10

Water treatment	Average		Yield, kg
	height, cm	fruits per plant, No	
Normal	47.2	5.8	3.50
Magnetic	**46.8**	**8.2**	**6.32**

Increase in yield of capsicum about 80%

PAKISTAN: Effect of Magnetic Treatment on Seeds Germination

Laboratory of Agronomy Department, University of Agriculture, Faisalabad

August 2010

No	Crop	Seeds Germination (%)	
		Control	Magnetic
1	Mungbean	70	80
2	Rice	82	88
3	Maize	14	18
4	Cotton	22	20

PAKISTAN: Effect of Magnetized Water and Seed on Wheat Germination

Department of Irrigation and Drainage, University of Agriculture, Faisalabad

January 2011

	T1= MW+MS	T2= NW+MS	T3= MW+NS	T4= NW+NS
Block1	82.86	83.70	74.43	73.59
Block 2	83.42	81.74	74.43	72.75
Block 3	70.78	83.98	77.24	74.71
Block 4	72.75	87.64	78.93	67.69
Average, %	77.45	84.27	76.26	72.18

PAKISTAN: Magnetic Treatment of Irrigation Water
Coriander Seeds Germination Test (Ordinary Soil)

July – August 2010, Green Gold Pvt. Ltd, Faisalabad


DAY–11
Sample 1
Normal Earth Regular Water
DAY–16
Sample 1
Normal Earth Regular Water
DAY–11
Sample II
Normal Earth with Magnetic Water
DAY–16
Sample II
Normal Earth with Magnetic Water

PAKISTAN: Magnetic Treatment of Irrigation Water
Coriander Seeds Germination Test (Ordinary Soil + Compost)

July – August 2010, Green Gold Pvt. Ltd, Faisalabad


DAY-11
Sample III
Normal + Compost Earth without
Magnetic Water


DAY-16
Sample III
Normal + Compost Earth without
Magnetic Water


DAY-11
Sample IV
Normal + Compost Earth with
Magnetic Water

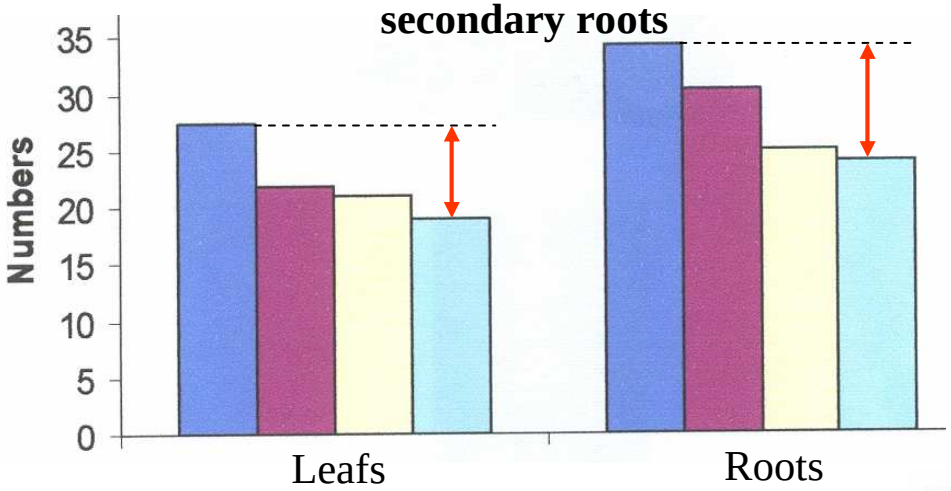

DAY-16
Sample IV
Normal + Compost Earth with
Magnetic Water

SUDAN: Physical properties of normal and magnetized water

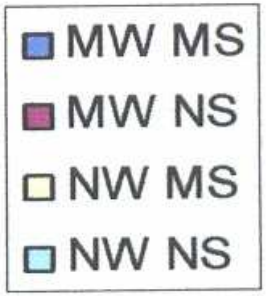
	Surface tension, n/m 10^{-3}	Capillarity, cm	Viscosity dynamic, kg/(m*s)*10^{-4}	Dielectric susceptibility (permittivity)	Specific heat, J/(kg*K)*10^{3}
Normal	6.792	2.54	7.322	80.90	4.132
Magnetized	6.911	2.70	7.283	82.40	4.120
+ 1.0 hour	6.893	2.68	7.291	82.13	4.128
+ 2.5 hour	6.871	2.67	7.300	81.98	4.125
+ 4.0 hour	6.860	2.66	7.306	81.80	4.127
+ 5.0 hour	6.843	2.64	7.312	81.50	4.129
+ 7.0 hour	6.825	2.61	7.317	81.20	4.130
+ 8.0 hour	6.812	2.59	7.319	81.00	4.130

SUDAN: Evaluation of Magnetic Technology for Vegetable Production Under Drip Irrigation System

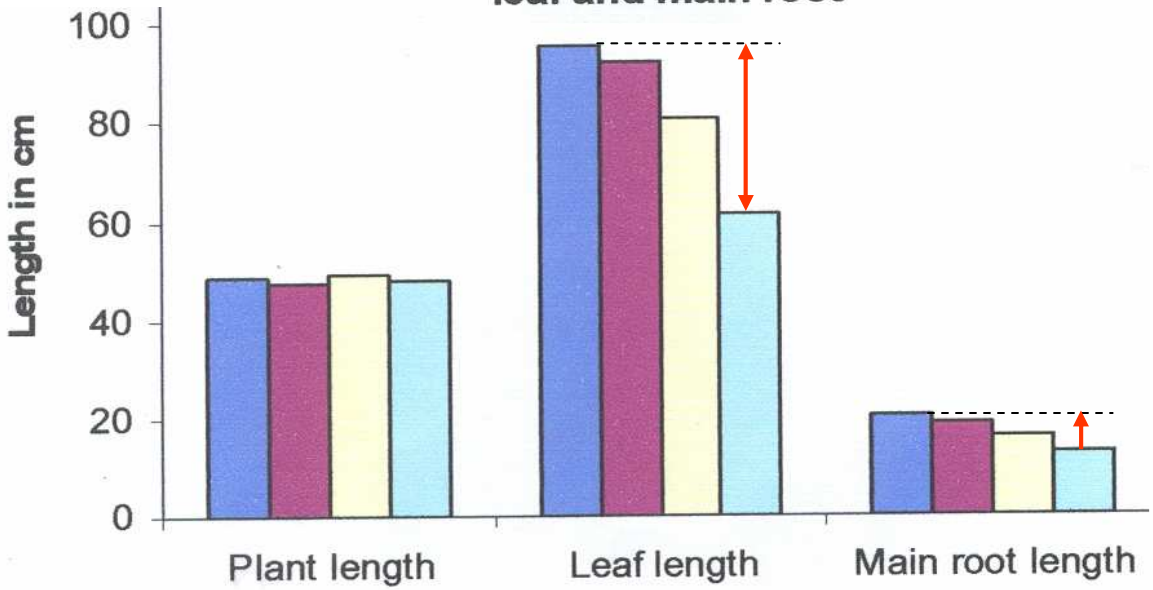
Effect of magnetic technology on number of leafs and secondary roots

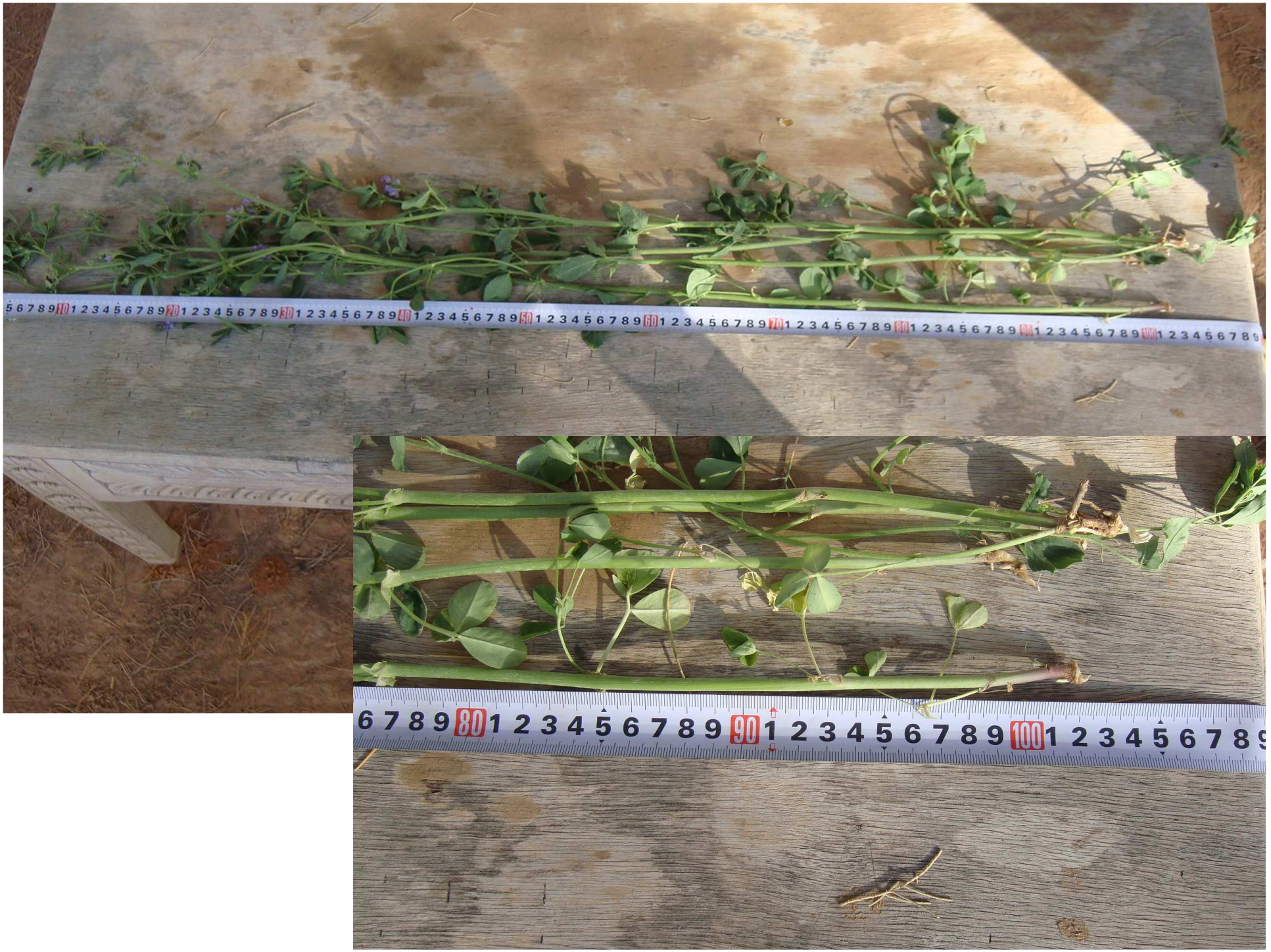


P 1/3: Okra



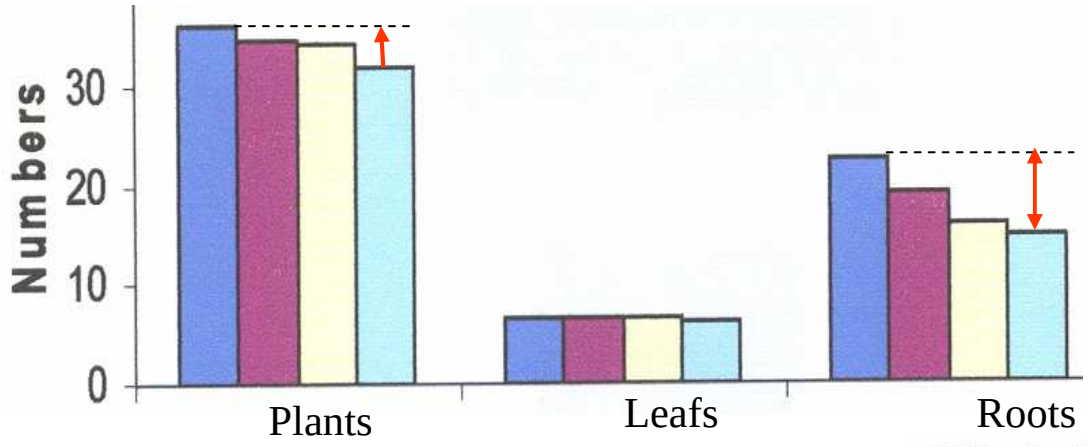
Effect of magnetic technology on length of plant, leaf and main root





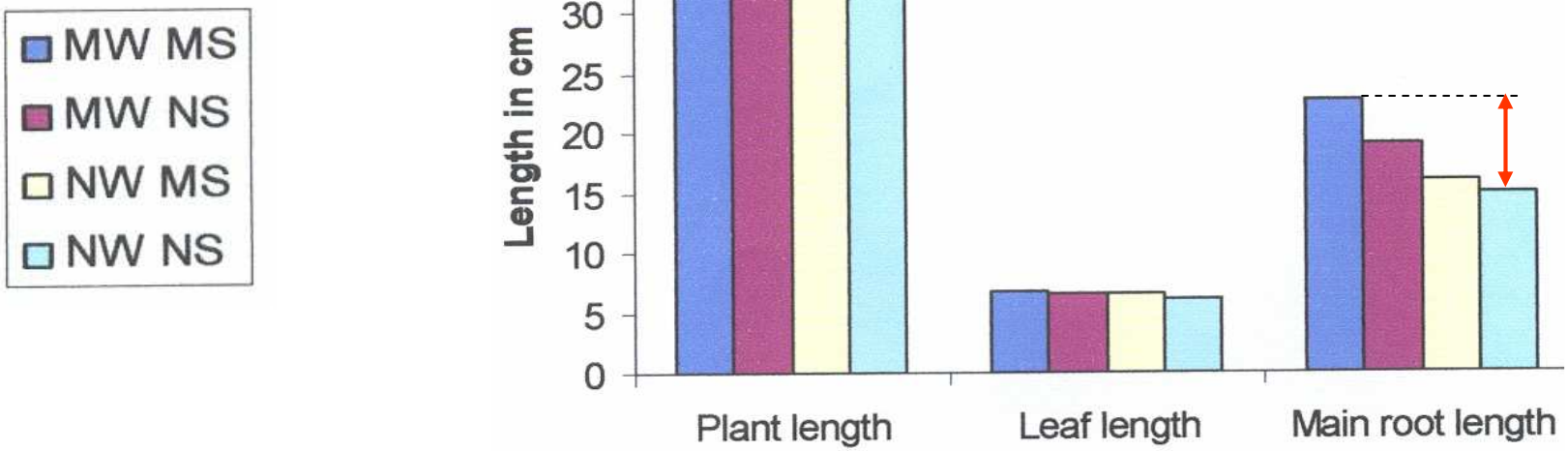
SUDAN: Evaluation of Magnetic Technology for Vegetable Production Under Drip Irrigation System

Effect of magnetic technology on number of plants, leafs and secondary roots



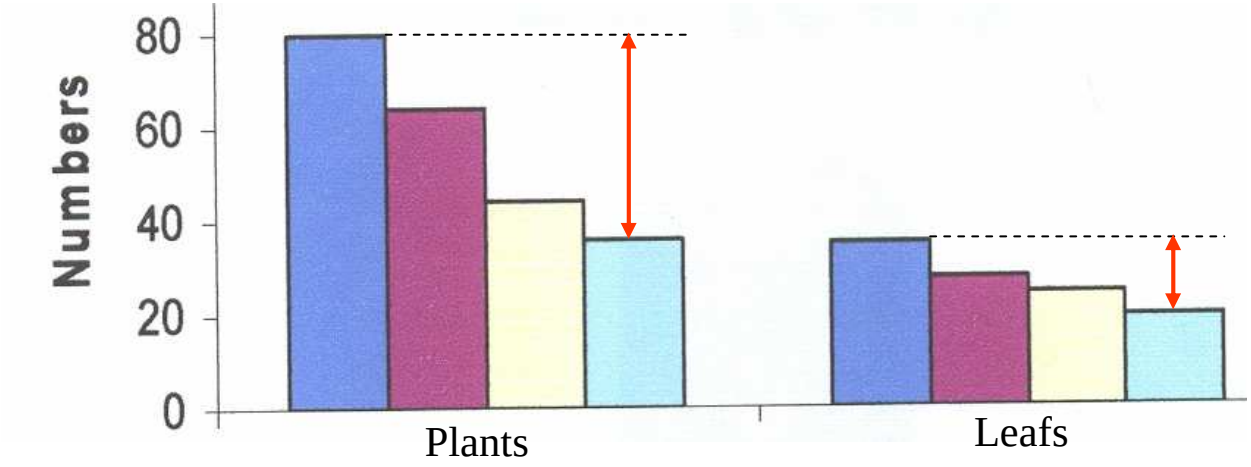
P 2/3: Jew's mallow

Effect of magnetic technology on length of plant, leaf and main root



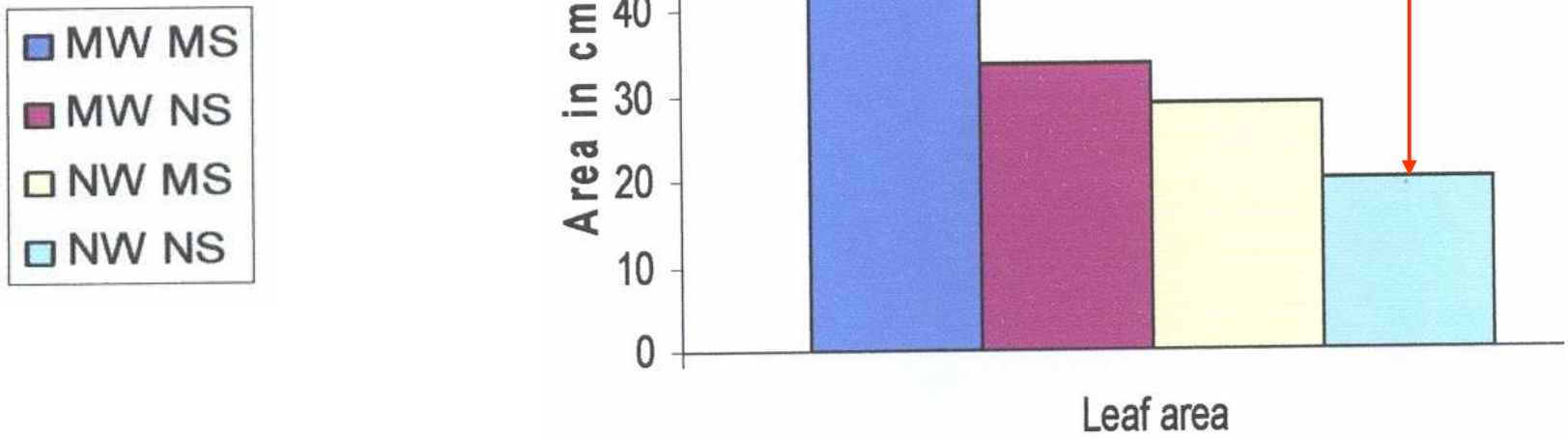
SUDAN: Evaluation of Magnetic Technology for Vegetable Production Under Drip Irrigation System

Effect of magnetic technology on number of plants and leafs



P 3/3: Rocket

Effect of magnetic technology on leaf area



SUDAN: Soil samples analysis after 2 month of irrigation

Depths	SP	pH	Ece	Ca+Mg	Na	SAR	CaCO3	BD	HC
Normal water									
0-10	56.08	8.05	0.45	2.46	2.32	2.4	2.29	1.39	0
10-20	55.88	8.26	0.33	1.6	2.28	1.48	4.94	1.19	0.19
20-30	59.01	8.19	1.96	3	5.1	5.48	4.18	1.74	0
Magnetized water									
0-10	60.38	7.62	1.63	2.8	1.56	1.98	2.78	1.56	0.05
10-20	71.78	7.71	1.03	4	2.31	2.01	3.44	1.65	0.13
20-30	60.64	8.15	0.94	4.5	1.71	13.91	3.04	1.49	0.10

SUDAN: Evaluation of Magnetic Technology for Vegetable Production Under Drip Irrigation System

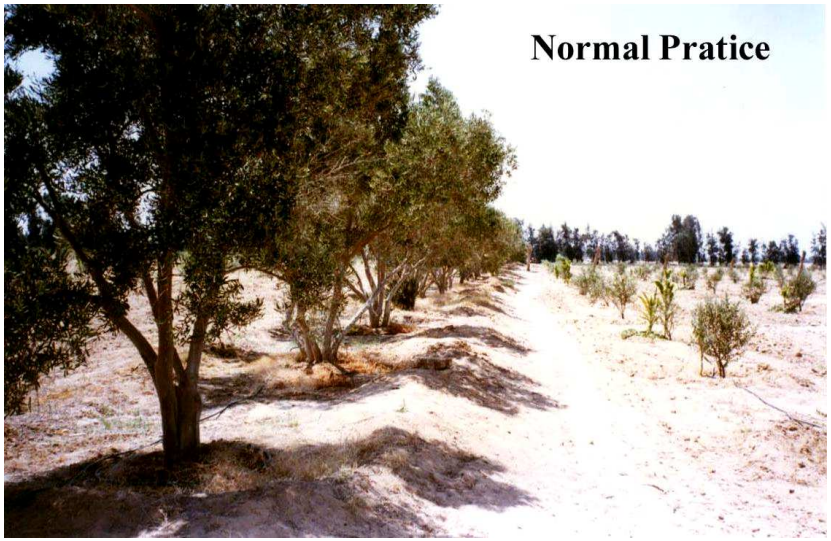
CONCLUSIONS

I. The emission uniformity (EU) was determined for drip literal line, with and without magnetic device. For none magnetized lines EU was found to be 82% where magnetized line gave EU of 90%. This clearly indicates that magnetic treatment of water improves the performance of emitters (reduces the effect of clogging and salt accumulation).

II. Magnetizing of irrigation water and plants seeds resulted in better establishment of plant growth (particularly, plant density, leafs numbers and sizes, roots numbers end lengths).

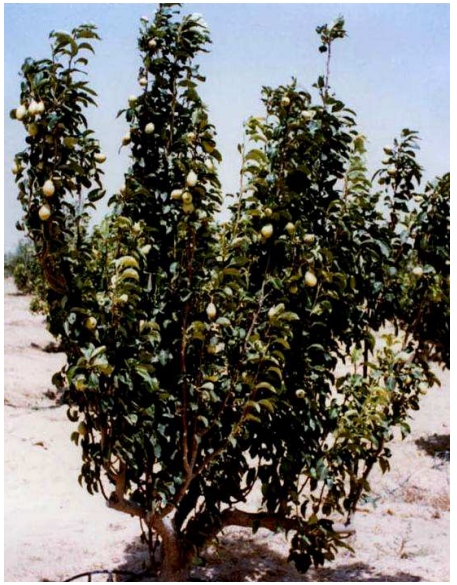
III. It can be conclude that magnetizing of irrigation water and plants seeds may lead to saving in amount of irrigation water coupled with improving in crop production.

EGYPT: Effect of Magnetic Treatment on Nutrients Availability Under Saline Water Irrigation



Normal Practice

Saline Water Irrigation (6000 ppm)



EGYPT: Effect of Magnetic Treatment on Nutrients Availability Under Saline Water Irrigation

Tree cover	Extractable nutrients (ppm) from root zone							
	N		P		K		Fe	
	NW	MTW	NW	MTW	NW	MTW	NW	MTW
Olives	515	770	80	180	46	98	32	114
Citrus	-	-	73	145	94	160	8	30

EGYPT: Nutrient distribution in surface and subsurface soil of certain orchards as affected by magnetic water treatment

Water Treatment	Soil Death cm	P		K		Fe	
APPLES							
Magnetized water	0-20	189	180	157	205	80	44
	20-50	115	130	164	126	51	37
Non-magnetized water	0-20	158	96	71	65	19	30
	20-50	35	44	50	18	13	12
OLIVE							
Magnetized water	0-20	168	261	105	261	85	41
	20-50	121	300	180	305	47	39
Non-magnetized water	0-20	216	182	71	147	21	28
	20-50	67	98	18	16	10	10

LYBIA: Olive farm, April 2009

LYBIA: Olive farm

3 months of magnetic treated water irrigation


LYBIA: Olive farm
5 months of magnetic treated water irrigation


LYBIA: Olive farm
7 months of magnetic treated water irrigation


LYBIA: Olive farm
12 months of magnetic treated water irrigation


LYBIA: Olive farm
Untreated water irrigation
24 liters of oil per 100 kg of olives

LYBIA: Olive farm

Magnetic device for irrigation water treatment


LYBIA: Olive farm
Magnetic treated water irrigation
36 liters of oil per 100 kg of olives

REPORT ON IRRIGATION AND WATER SAVING POTENTIAL OF MAGNETIC TREATED WATER IN VEGATABLE CROPS

University of Western Sydney, Australia

This study examines whether there are any beneficial effects of magnetic treatment of different irrigation water types on water productivity and yield of snow pea and celery plants. Replicated pot experiments involving magnetically treated and non-magnetically treated potable water (tap water), recycled water and saline water were conducted in glasshouse under controlled environmental conditions during April 2007 to December 2008 period at University of Western Sydney, Richmond Campus (Australia).

Overall, the results indicate some beneficial effect of magnetically treated irrigation water, particularly for saline water and recycled water, on the yield and water productivity of celery and snow pea plants under controlled environmental conditions.

The magnetic treatment of recycled water and 3000 ppm saline water respectively increased celery yield by 12% and 23% and water productivity by 12% and 24%.

For snow peas, there were 7.8%, 5.9% and 6.0% increases in pod yield with magnetically treated potable water, recycled water and 1000 ppm saline water, respectively. The water productivity of snow peas increased by 12%, 7.5% and 13% respectively for magnetically treated potable water, recycled water and 1000 ppm saline water.

Effects (%) of magnetic treatment of irrigation waters on celery yield parameters, water use and water productivity

	Water			
	potable	STP	1500 ppm	3000 ppm
Mean yield fresh weight	0.0	**12.4**	9.6	**22.9**
Mean yield dry weight	-2.0	**12.0**	4.3	**26.9**
Mean root dry weight	-3.2	2.9	-0.4	**14.7**
Water use	-4.3	-0.6	-1.5	-0.8
Water productivity	4.4	**11.7**	**11.1**	**23.7**

There was significant increase in water productivity based on fresh weight by applying magnetically treated 3000 ppm saline water, 1500 ppm saline water and recycled water when compared with the controls. Similar trends were also observed for the water productivity based on dry weight, but the increase for 1500 ppm saline water was not significant.

Effects (%) of magnetic treatment of irrigation waters on snow peas yield parameters, water use and water productivity

	Water			
	potable	STP	500 ppm	1000 ppm
Mean yield fresh weight	**7.9**	**6.0**	1.1	**6.1**
Mean yield dry weight	**10.8**	**6.9**	1.7	**8.2**
Mean shoot dry weight	0.4	0.5	-0.4	2.6
Mean root dry weight	-3.7	-3.1	4.2	8.7
Water use	-3.8	-1.4	-0.3	-5.8
Water productivity	**12.1**	**7.5**	-0.1	**12.6**

For water productivity based on fresh weight basis, the effects of the magnetic treatment were significant for potable water, recycled water and 1000 ppm saline water. Similar trends were also observed for water productivity based on dry weight basis, but the effect of magnetic treatment was non-significant for recycled water.

Effects (%) of magnetic treatment of irrigation waters on mean values of peas yield parameters, water use and water productivity

	Water			
	potable	STP	1500 ppm	3000 ppm
Mean yield fresh weight	1.25	8.1	-1.9	5.7
Mean yield dry weight	0.0	9.7	-1.9	4.8
Water use	-4.8	0.1	-2.2	-2.1
Water productivity	5.2	6.7	0.0	4.2

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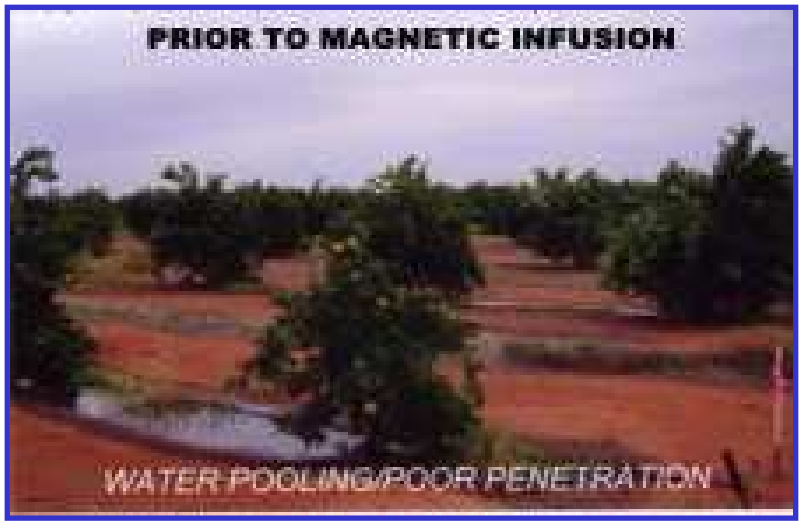

	UNMAGNETIZED	MAGNETIZED
VINEYARD MAIN LINE RUNNING PRESSURES (kPa)	420	480
VINEYARD MAIN LINE VOLUMES (m^3/hr)	520	570
DRAW OF CURRENT ON 2 X100HP PUMPS (Hz)	50	45

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

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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*

Effects of Magnetic Treatment of Irrigation Water and Seeds on Mean Shoot and Root Dry Weights of Seedlings

(20 Days After Sowing)

Treatments	Shoot weight, mg/plant		Root weight, mg/plant	
	Snow Pea	Chickpea	Snow Pea	Chickpea
Control	62.3	46.3	38.62	89.4
MTW	77.6 (24.7)	55.5 (19.8)	43.11 (11.6)	90.8 (1.6)
MTS	69.1 (11.0)	48.2 (4.1)	38.95 (0.8)	89.8 (0.5)
MTWS	67.1 (7.8)	49.3 (6.5)	37.10 (-3.9)	88.7 (-0.7)
	S	*S*	*S*	*NS*

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

CONCLUSION

1. *The treatment of irrigation water and seeds with magnetic fields for a brief exposure significantly increased seedling ERI (33-83%) and shoot dry weight (4-25%) in both snow peas and chickpeas.*

2. *The MTW resulted in a significant ($P<0.05$) increase in N, K, Ca, Mg, S, Zn, Fe and Mn contents in snow pea (13-37%) and chickpeas seedling (11-18%).*

3. *The MTS resulted in an increase in N, Ca, S, Zn, Fe and Mn contents for snow peas seedlings (9-28%) only.*

4. *The MTW was more effective than the MTS for seedling emergence and seedling growth.*

5. *There was no additional advantage gained by treating both irrigation water and seeds for any of the attributes of snow pea and chickpea seedlings, except for a significant increase in seedling emergence percentage of snow peas (50%) when compared with the control.*

AUSTRALIA: Before Intastalling Magnetic System.
The trial began with only 40 trees of papaya…

… after the trial 400 trees were planted

AUSTRALIA: Inspecting the Results on Papaya Growth with 4860 ppm TDS