



MOBILIZER EFFECTS ON ELEMENTAL UPTAKE IN AEROPONICS

Element complexing or lockup is an important issue globally, some believe it to be the number one problem in horticulture agriculture production. A product designed and produced by JH Biotech Inc. 'Mobilizer' was developed to address these issues. Mobilizer unlocks locked up elements. Many believe that hydroponics and aeroponic production allows for total utilisation of nutrients, unlike soil as a medium.

Glasshouse situations are able to control other aspects of production to allow for a well-controlled trial.

Mobilizer was put to the test in a commercial operation to see the outcome of nutrient uptake.

MOBILIZER

Mobilizer is a concentrated liquid ORGANIC extract designed to mobilise and naturally chelate the macro and microelements in the soil. Mobilizer transforms and stores fertiliser nutrients into easily available forms. Mobilizer mobilizes calcium, phosphorous, potassium, magnesium, and trace elements, thus increasing their availability when injected into irrigation systems, hydroponics tanks, or applied to the soil. Moreover, Mobilizer is known to aid in leaching Sodium out of the soil. The most pronounced effects of Mobilizer are obtained when using it in early season soil treatments followed with post emergence foliar sprays.

BENEFITS OF MOBILIZER

- Mobilizer reduces precipitation of Phosphorous and mobilizes Calcium, Potassium, Magnesium and trace elements by making them more available to the crop when injected into fertigation systems.
- Mobilizer is totally organic and environmentally friendly.
- Mobilizer transports nutrients within the plant (e.g. Calcium, Iron and/or Zinc are normally not very mobile within the plant) when sprayed onto the foliage in conjunction with nutrients.
- Mobilizer stimulates the metabolism of the plants by converting carbohydrates into soluble solids.
- Mobilizer is a natural plant electrolyte and is able to increase the pressure of the cell membrane to enable plants to withstand wilting and periods of extreme heat or cold.
- Mobilizer also enhances growth, cell division and elongation and stimulates the immune system.
- Mobilizer is known to aid leaching of Sodium out of the soil when applied alone or with soil ameliorants.
- Mobilizer is a buffer and can be used on alkaline or acid soils, regardless of the pH.



PLACE AND PROCEDURE

Mr. Ric Garrett, Hygro Pod Aeroponics supplied crop for trial being cucumber in glasshouse. The cucumbers were planted on the same day, same variety with identical nutrient tank mixes. All treatments were the same, named Normal and Abnormal 1 and 2 as the trial was replicated twice.

In Normal 1 and Normal 2 tank mixes, 100 ml of Mobilizer was placed into 100Lt water.

1 week later Friday 1/9/2004 leaf tissue was submitted for analysis to Hill Laboratories for comparison.

RESULTS

Refer table page three

Mobilizer applied to Normal tank 1, and Normal tank 2, lifted mineral levels of all elements to some degree, with Calcium uptake movement as per tissue analysis showing extraordinary increases, measured in Abnormal 1 at 2.76% in comparison to Normal 1 (Mobilizer addition) at 6.55%

Replicate 2: Calcium levels in Abnormal tank 2 was measured at 3.16% compared to 5.75% in Normal tank 2.

COMMENTS

This is quite a lift of Calcium, which is believed to be the most underestimated element nutritionally for production. All the other elements lifted to varying degrees, some such as Magnesium, doubled.

This is an amazing increase in elemental uptake which proves that often time crop deficiency symptoms are seen not from **under fertilisation** but from **under utilisation**.

Fertiliser availability is an important aspect of crop production which will not only enhance produce nutritionally but may also help cut expensive fertiliser use, making fertiliser more available to the plant, reducing leaching or precipitation into water streams which will also impact favourably on our environment.

19524 Ric Garrett [Order# 6018486]

archive

Hygro Pod Aeroponics

1322 Glenbrook Road, R D 1 WAIUKU

Rep: 1738 A/C: 83

Dis: 25

Jc:

Area: 18

Registered: Fri 01/09/00

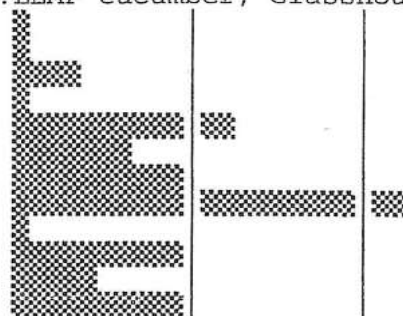
19524/01 F0F Abnormal 1

BP6

P13

P13:LEAF Cucumber, Glasshouse

Nitrogen	(%)	2.5	5.0 - 6.0
Phosphorus	(%)	0.18	0.70 - 1.00
Potassium	(%)	3.0	4.5 - 5.5
Sulphur	(%)	0.42	1.00 - 2.00
Calcium	(%)	2.76	2.00 - 4.00
Magnesium	(%)	0.44	0.50 - 1.00
Sodium	(%)	0.05	0.05 - 0.25
Iron	(ug/g)	299	100 - 150
Manganese	(ug/g)	19	60 - 150
Zinc	(ug/g)	46	40 - 80
Copper	(ug/g)	6	8 - 20
Boron	(ug/g)	35	35 - 60



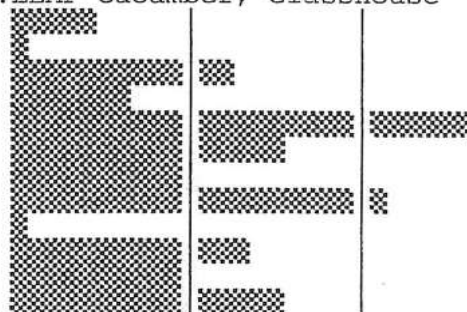
/02 F0F Normal 1

BP6

P13

P13:LEAF Cucumber, Glasshouse

Nitrogen	(%)	4.0	5.0 - 6.0
Phosphorus	(%)	0.24	0.70 - 1.00
Potassium	(%)	4.8	4.5 - 5.5
Sulphur	(%)	0.85	1.00 - 2.00
Calcium	(%)	6.55	2.00 - 4.00
Magnesium	(%)	0.82	0.50 - 1.00
Sodium	(%)	0.06	0.05 - 0.25
Iron	(ug/g)	283	100 - 150
Manganese	(ug/g)	21	60 - 150
Zinc	(ug/g)	59	40 - 80
Copper	(ug/g)	10	8 - 20
Boron	(ug/g)	51	35 - 60



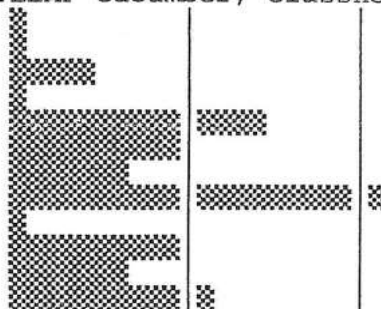
/03 F0F Abnormal 2

BP6

P13

P13:LEAF Cucumber, Glasshouse

Nitrogen	(%)	2.5	5.0 - 6.0
Phosphorus	(%)	0.18	0.70 - 1.00
Potassium	(%)	3.3	4.5 - 5.5
Sulphur	(%)	0.43	1.00 - 2.00
Calcium	(%)	3.16	2.00 - 4.00
Magnesium	(%)	0.50	0.50 - 1.00
Sodium	(%)	0.04	0.05 - 0.25
Iron	(ug/g)	274	100 - 150
Manganese	(ug/g)	13	60 - 150
Zinc	(ug/g)	46	40 - 80
Copper	(ug/g)	7	8 - 20
Boron	(ug/g)	40	35 - 60



/04 F0F Normal 2

BP6

P13

P13:LEAF Cucumber, Glasshouse

Nitrogen	(%)	3.8	5.0 - 6.0
Phosphorus	(%)	0.23	0.70 - 1.00
Potassium	(%)	4.2	4.5 - 5.5
Sulphur	(%)	1.00	1.00 - 2.00
Calcium	(%)	5.75	2.00 - 4.00
Magnesium	(%)	0.77	0.50 - 1.00
Sodium	(%)	0.07	0.05 - 0.25
Iron	(ug/g)	330	100 - 150
Manganese	(ug/g)	24	60 - 150
Zinc	(ug/g)	62	40 - 80
Copper	(ug/g)	19	8 - 20
Boron	(ug/g)	58	35 - 60

