



#### CASE STUDY

### Affects of Mobilizer (Fulvic Acid) on nutrient content of indoor Capsicum production NZ Gourmet Paprika-Waiuku

#### Background:

Mobilizer (Fulvic acid) is, in essence, the principal 'active' ingredient in humic acid. It is the driving force behind the performance of all humate-based materials and arguably the most valuable input in biological agriculture.

Mobilizer has a high cation exchange capacity making locked up minerals available, enabling free movement into plants increasing nutrient levels, yield and quality. Mobilizer also increases cell membrane pressure so plants withstand wilting, periods of extreme heat/cold and it enhances growth, cell division and elongation. Previous trials have demonstrated that the inclusion of Mobilizer into a closed nutrient fertigation system has resulted in measured improvements in nutrient levels from leaf samples.

#### Objective:

To determine if incorporating Mobilizer at 3L per 3000L of water will improve nutrient uptake in the leaf of Capsicum plants at NZ Gourmet Waiuku.

#### Method:

Gourmet Waiuku has two glasshouses on site each were being fertigated with the same nutrient mix. House 1 (Control) is the larger house and was planted 8<sup>th</sup> June 2015, the smaller House 2 (Mobilizer) was planted 13<sup>th</sup> April 2015.

Step 1: Leaf taken and sent for analysis prior to treatment for both houses on the 4<sup>th</sup> September 2015

Step 2: Mobilizer was added to the B1 nutrient tank mix at 3L in 3000 Litres on the 4<sup>th</sup> September 2015 and it took 3 days to flow through the system

Step 3: Leaf taken and sent for analysis 11<sup>th</sup> September 2015 (7 days after treatment)

#### Results:

Although the two houses had different planting dates Roelf Schreuder from NZ Gourmet stated - 'The fertigation mix going into both houses was the same'. The younger crop in House 1 had been utilising a slightly different fertiliser mixture previously with higher calcium rates and this was evident in the initial readings. (table 1 pg 2).

Table 1: Leaf analysis results and percentage changes

Gourmet Paprika Waiuku

| Control<br>Pre-treatment             | House<br>1 | Date:<br>4 <sup>th</sup> Sept 2015     |
|--------------------------------------|------------|--|
|                                      |            |  |
| Nitrogen                             | 5.8        |  |
| Phosphorous                          | 0.55       |  |
| Potassium                            | 5.9        |  |
| Sulphur                              | 0.64       |  |
| Calcium                              | 2.07       |  |
| Magnesium                            | 0.59       |  |
| Sodium                               | 0.014      |  |
| Iron                                 | 132        |  |
| Manganese                            | 102        |  |
| Zinc                                 | 73         |  |
| Copper                               | 8          |  |
| Boron                                | 39         |  |
|                                      |            |  |
| Control<br>7 days after<br>Treatment | House<br>1 | Date:<br>11 <sup>th</sup> Sept<br>2015 |
|                                      |            | % Increase                             |
| Nitrogen                             | 4.8        | -17%                                   |
| Phosphorous                          | 0.41       | -25%                                   |
| Potassium                            | 4.5        | -24%                                   |
| Sulphur                              | 0.6        | -6%                                    |
| Calcium                              | 2.15       | 4%                                     |
| Magnesium                            | 0.65       | 10%                                    |
| Sodium                               | 0.007      | -50%                                   |
| Iron                                 | 118        | -11%                                   |
| Manganese                            | 104        | 2%                                     |
| Zinc                                 | 63         | -14%                                   |
| Copper                               | 6          | -25%                                   |
| Boron                                | 34         | -12%                                   |

| Mobilizer<br>Pre-treatment             | House<br>2 | Date:<br>4 <sup>th</sup> Sept 2015     |
|--|------------|--|
|  |            | % Increase                             |
| Nitrogen                               | 6          | 3.44%                                  |
| Phosphorous                            | 0.54       | -1.81%                                 |
| Potassium                              | 5.1        | -13.56%                                |
| Sulphur                                | 0.67       | 4.69%                                  |
| Calcium                                | 1.8        | -10.00%                                |
| Magnesium                              | 0.58       | -1.69%                                 |
| Sodium                                 | 0.027      | 92.86%                                 |
| Iron                                   | 165        | 25%                                    |
| Manganese                              | 105        | 2.94%                                  |
| Zinc                                   | 75         | 2.74%                                  |
| Copper                                 | 8          | 0%                                     |
| Boron                                  | 50         | 28.21%                                 |
|  |            |  |
| Mobilizer<br>7 days after<br>Treatment | House<br>2 | Date:<br>11 <sup>th</sup> Sept<br>2015 |
|  |            | % Increase                             |
| Nitrogen                               | 4.9        | -18%                                   |
| Phosphorous                            | 0.4        | -26%                                   |
| Potassium                              | 5          | -2%                                    |
| Sulphur                                | 0.7        | 4%                                     |
| Calcium                                | 2.86       | 59%                                    |
| Magnesium                              | 0.76       | 31%                                    |
| Sodium                                 | 0.01       | -63%                                   |
| Iron                                   | 133        | -19%                                   |
| Manganese                              | 139        | 32%                                    |
| Zinc                                   | 87         | 16%                                    |
| Copper                                 | 6          | -25%                                   |
| Boron                                  | 54         | 8%                                     |

Conclusion:

The inclusion of Mobilizer into House 2 nutrient mix appears to have lifted important mineral levels in the plants when analysed 7 days later. Calcium, Magnesium, Manganese, Zinc and Boron have had a large increase over initial analysis, even though the nutrient input mix remained the same. These elements are important for cell strength, colour and flowering. The addition of Mobilizer appears to have enabled higher utilisation of the nutrients being applied while also reducing sodium levels supporting numerous other findings around fulvic acid.