



Report # RS13168

For

Roots, Shoots and Fruits Limited

April 2014

## SUMMARY

A field trial conducted to evaluate the effects of MOBILIZER (fulvic acid) on the grading and yield of commercially grown potatoes. The trial was located in the Pukekohe district in the 2013/14 growing season.

Mobilizer was applied at 2.0 L/ha at emergence and again one month later at tuber initiation to a 4.0 ha block of Osprey potatoes. Standard grower applied fertilisers and pesticides were made throughout the season to the trial plot and to an adjacent “untreated” area.

At harvest, samples from hand dug sub plots showed that there was no difference in the number of tubers set in each treatment. The percentage of seed sized tubers was less in the Mobilizer treated area, where the percentage of larger tubers was greater.

The total weight of tubers from the Mobilizer treatment was 79.7 t/ha, compared with 72.1 t/ha from the untreated area – a 10.5% increase.

# METHOD AND MATERIALS

**Table 1 – Trial details**

|                             |   |
|-----------------------------|---|
| <b>Trial identification</b> | RS/PG/13168   |
| <b>Co-operator/Grower</b>   | Hira Bhana Limited                                      |
| <b>Location</b>             | Quarry Road<br>Pukekohe                                 |
| <b>Soil type</b>            | Patumahoe clay loam                                     |
| <b>Site history</b>         | Continuous vegetable production                         |
| <b>Crop Details</b>         | Potatoes c.v. <i>Osprey</i> planted July 2013           |
| <b>Trial design</b>         | Single replicate  |
| <b>Application method</b>   | Grower applied ground sprayer                           |
| <b>Application details</b>  | 5 August (emergence) and 5 September (tuber initiation) |

**Table 2 – Formulation details**

| PRODUCT   | ACTIVE CHEMICAL                         |
|-----------|---|
| Mobilizer | 3.0% fulvic acid<br>soluble concentrate |

## ASSESSMENTS

### 1. Yield

Prior to commercial harvest, 6 x 3.0m row sub plots were hand dug from the Mobilizer treated and untreated areas. Tubers were counted and graded in to weight categories: < 50g, 50-100g, 100-300g and >300g.

During commercial harvesting on 8 January, the bulk volume of potatoes was measured from 8 rows per plot (>1600m<sup>2</sup>)

## RESULTS AND DISCUSSION

A commercially growing crop of *Osprey* potatoes was used to evaluate treated and untreated areas. The Mobilizer spray treatment was applied by the grower's ground rig sprayer at the desired timings to a 4.0 ha area.

Standard cultural practices of fertiliser, pesticides and irrigation were common to both the Mobilizer treated area and the adjacent untreated area of the paddock.

## Yield

Prior to commercial harvesting, hand dug tuber samples were collected, counted and weighed. The sub plots were selected in an area that appeared uniform. The distance between the treated and untreated sample collections was kept to less than 20m to avoid any variations in soil type.

The number of tubers from each area was similar for each grade.

**Table 3 – Treatment effect on tuber number**

| TREATMENT    | Mean tuber number/m row |         |          |        |       |
|--------------|-------------------------|---------|----------|--------|-------|
|              | < 50g                   | 50-100g | 100-300g | > 300g | TOTAL |
| 1. Untreated | 6.1                     | 9.9     | 25       | 0.9    | 41.9  |
| 2. Mobilizer | 7.3                     | 7.0     | 24.5     | 1.6    | 40.4  |

Untreated sub plots had a greater percentage of seed size (50-100g) tubers than the Mobilizer treated plots. The number and percentage of larger tubers (>300g) was greater in the Mobilizer treated plots.

In both the hand dug and commercially harvested samples, higher overall yield was greater in the Mobilizer treated area.

**Table 4 – Treatment effect on tuber yield**

| TREATMENT    | Mean % yield by grade |         |          |        |               |                     |
|--------------|-----------------------|---------|----------|--------|---------------|---------------------|
|              | < 50g                 | 50-100g | 100-300g | > 300g | t/ha hand dug | t/ha commercial dug |
| 1. Untreated | 3.7                   | 14.5    | 75.9     | 5.8    | 69.2          | 72.1                |
| 2. Mobilizer | 4.1                   | 9.7     | 76.3     | 9.8    | 70.6          | 79.7                |

## CONCLUSIONS

- ❖ Applied at crop emergence and at tuber initiation, two applications of Mobilizer at 2.0 L/ha produced a 10.5% increase in potato yield. Yield increase appeared to be a function of producing a lesser proportion of seed sized tubers and increasing the volume of larger tubers.
- ❖ The applications of Mobilizer did not affect the setting of potato tubers.



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