

Randomised Trial on Field Grown Beetroot

Comparing Grower Standard as Control, With Grower Standard plus Mobilizer



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In conjunction with Hawkes Bay Beetroot grower

Special Thanks to Blake Steele for his assistance in the measurement and weighting of hundreds of beetroot

Background

Improvements to crop yield is a constant endeavour for farmers to stay viable in these economic times. Mobilizer, a Fulvic acid product developed by JH Biotech Inc. has shown excellent yield improvements and financial rewards from one or two applications applied at appropriate timings to a wide range of field grown crops as well as indoor glasshouse production. Mobilizer has many attributes, one of the main being the ability to unlock complexed minerals in the soil and to deliver or transport the nutrients from the soil to the plant. This long chained organic carbon material stimulates the plants metabolism and immune system and by increasing the pressure of the cell membrane it also enables plants to withstand wilting or periods of extreme heat and cold. Mobilizer is a buffer so it is excellent to apply to water adjusting pH to appropriate levels allowing ease of mixing of products.

Objectives & Purpose

The objective of the trial was to measure any improvements to the beetroot crop in terms of yield, size and weight as well as circumference of the beets after one application of Mobilizer was applied compared to a control where no Mobilizer was applied. If consistent with prior trials, Mobilizer will increase yield and overall profitability of the crop.

Trial design

A piece of land was divided into four blocks, two 'Control' and two 'Mobilizer'. One application of Mobilizer was applied to the leaf on the 10th December 2013, when beets were approximately 14-15cm in height with a field sprayer. Visually control block 4 and Mobilizer block 2 appeared to be healthier than Control 1 and Mobilizer 3 so within those blocks a number of randomised measurements were taken.

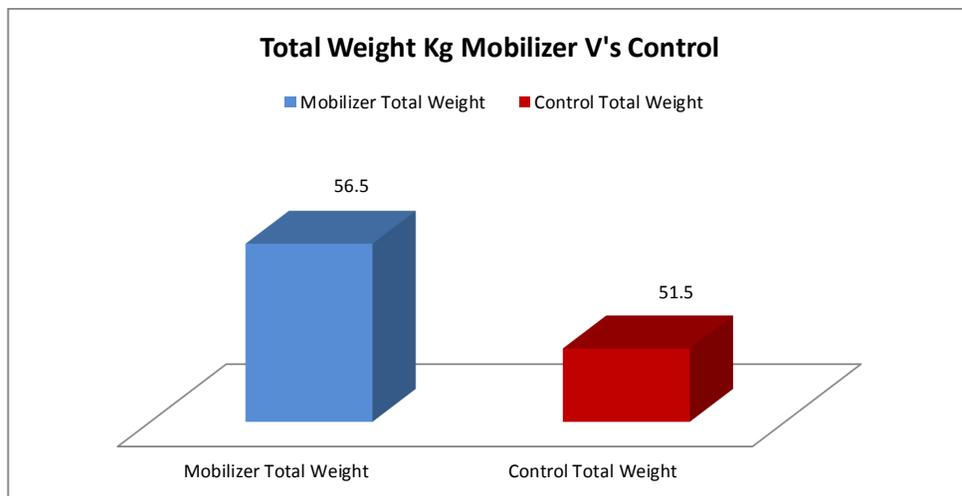
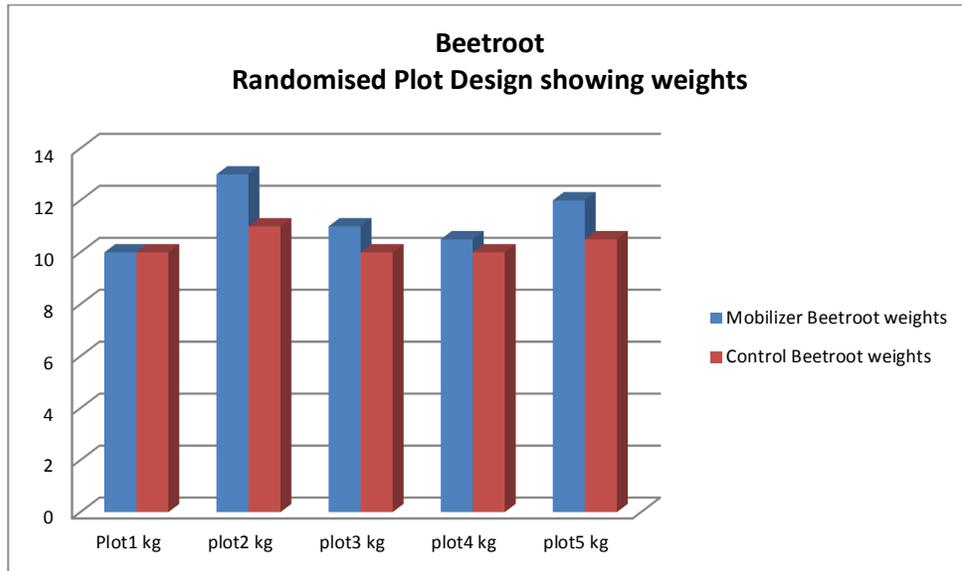


- 1/ Five by one metre plot areas were measured randomly within the Mobilizer and Control areas and all beets were picked and weighted

- 2/ Five x 10 (50) random beets were picked from within both the Control and Mobilizer blocks, weighted and the circumference measured.

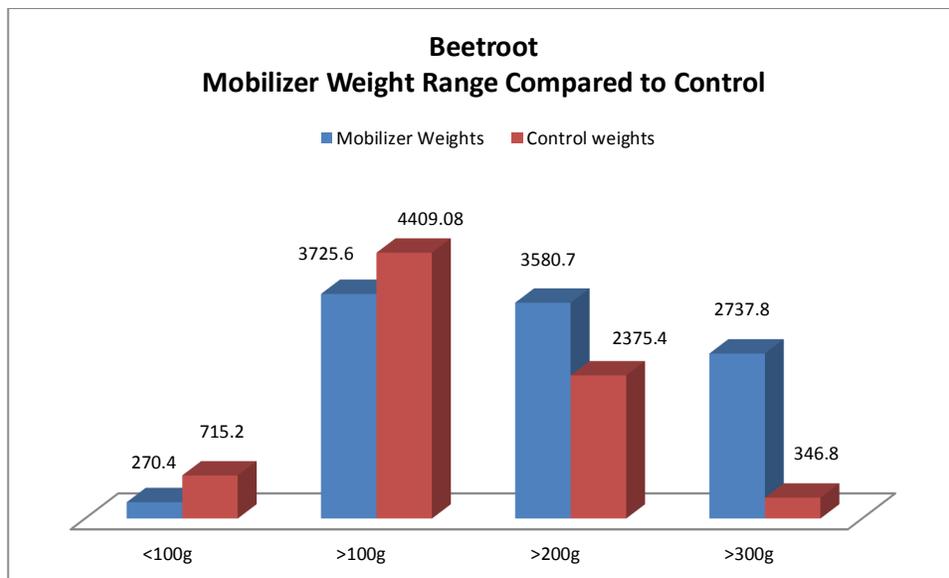
- 3/ Five hundred (500) beets from a row of the Mobilizer treated area and 500 beets from a row of Control area were dug and measured

Data 1/

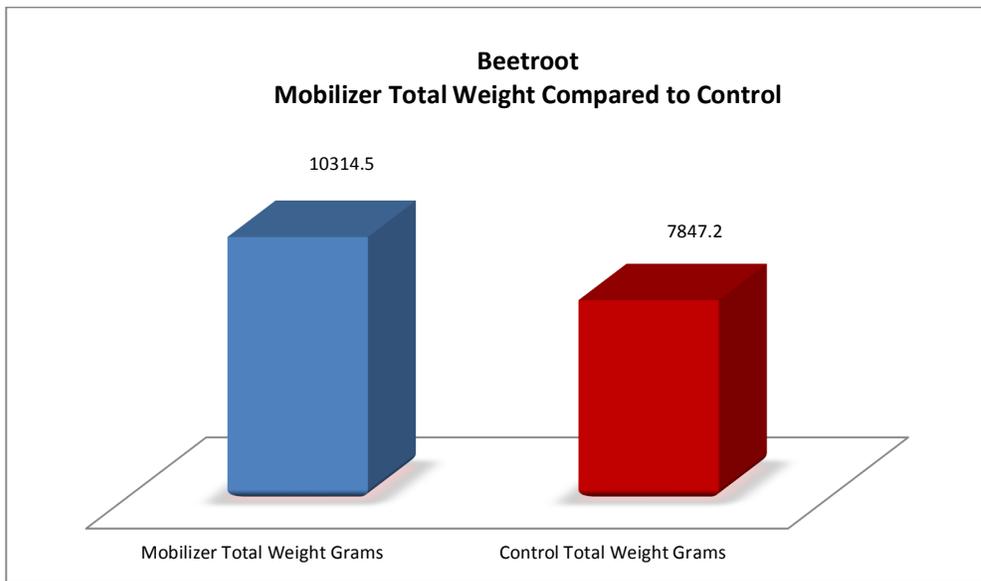


Mobilizer had increased weights in each trial replicate over control except plot one where they were the same with an average weight of 11.3kg compared to control average of 10.3kg

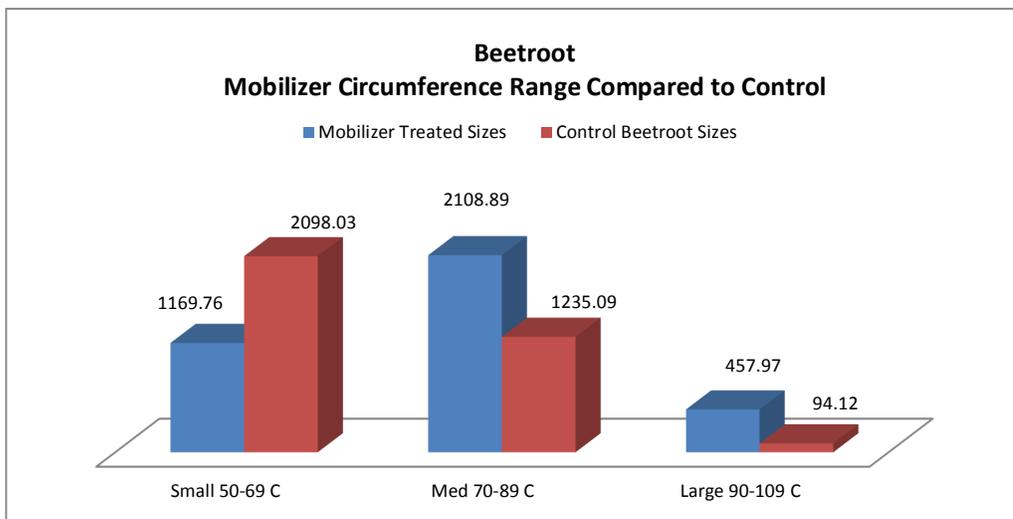
Data 2/



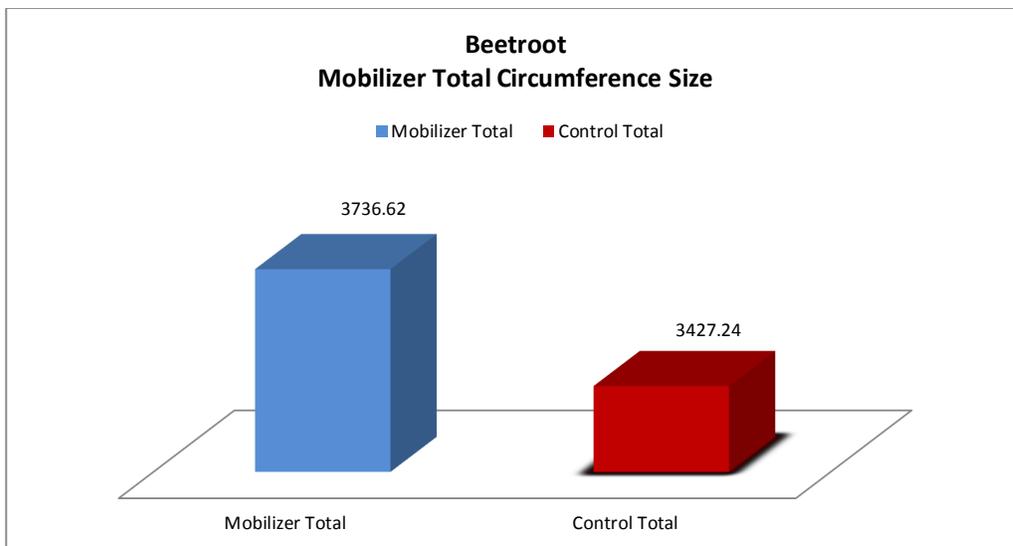
Mobilizer increased weights of beetroot compared to control which had more beets in the lower weights



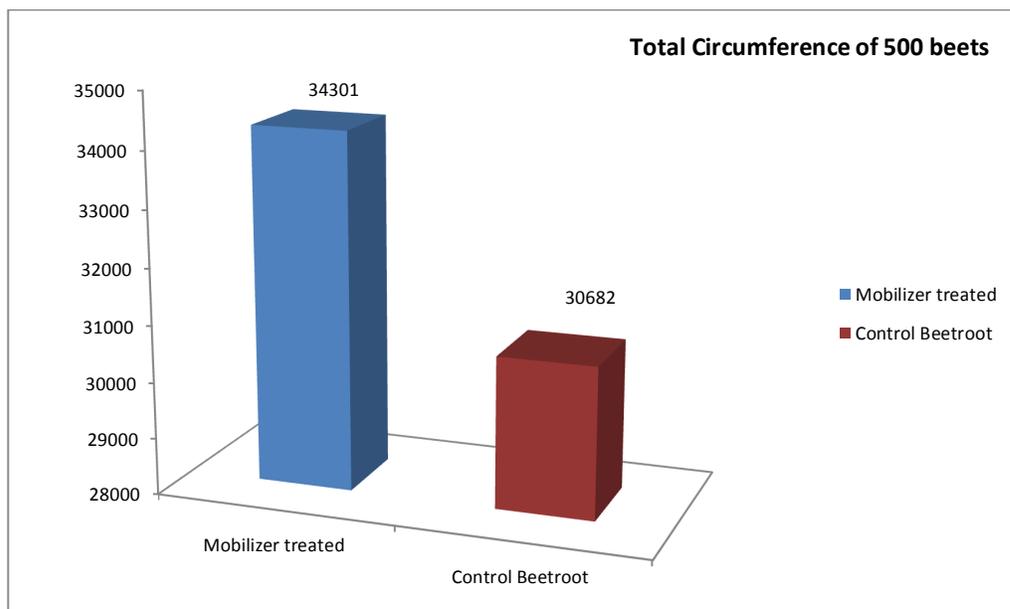
Mobilizer showed a total overall increase in weight of beetroot compared to Control



Mobilizer treated samples had more larger circumference beets; Control samples had more smaller sizes



Mobilizer treated samples had a larger overall size of beets



Results

Results show that Mobilizer increased weights and size of treated plants. Mobilizer treated beetroot were larger in terms of circumference size as well there were more beetroot in the larger size bracket overall in each plot replicate compared with control.

Mobilizer treated samples had a larger overall size of beets with an average measurement of 74.73mm and an average weight of 206.29 grams. I.e. for every mm of growth on the Mobilizer treated plots there was an average increase in weight of 2.76 grams whilst the control showed for every 1mm growth there was a lower average increase of 2.33 grams in weight.

The result also showed an average increase of 31.4% in beetroot weights from the control due to Mobilizer treatment

Average control weights 1570g Average Mobilizer weights 2063g Difference 493g
 $493/1570=0.314 \times 100=31.4\%$ increase

Statistical analysis

	Circumference Comparisons	
	Mobilizer	Control
Plot 1	782.93	723.12
Plot 2	786.85	692.20
Plot 3	738.31	695.86
Plot 4	700.35	643.82
Plot 5	728.18	608.43

Results of the statistical analysis:

Average result for each treatment

Mobilizer	Control
747.3	673.0

The p-value is between 0.005 and 0.01.

This means that the probability of the differences between treatments being due to chance is between 0.5% and 1%

The least significant difference, or LSD (95%) is 39

The LSD is the smallest difference between treatments that can be detected.

The '95%' relates to the percentage of times the LSD gives the correct answer.

This is a really solid result - you can be confident that your treatments differed in these conditions.

	Weight Comparisons	
	Mobilizer	Control
Plot 1	2398	1883.2
Plot 2	2283	1613
Plot 3	1980.2	1810.2
Plot 4	1677	1212.6
Plot 5	1976.3	1328.2

Results of the statistical analysis:

This is a really solid result - you can be confident that your treatments differed in these conditions.

Average result for each treatment

<u>Mobilizer Weights</u>	<u>Control Weights</u>
2063	1570

The p-value is between 0.005 and 0.01.

This means that the probability of the differences between treatments being due to chance is between 0.5% and 1%.

The least significant difference, or LSD (95%) is 250

The LSD is the smallest difference between treatments that can be detected.

The '95%' relates to the percentage of times the LSD gives the correct answer.

This is a really solid result - you can be confident that your treatments differed in these conditions.

Finance

Beetroot growers are paid by weight and with a statistical difference of 31.4% in average weight increase through the use of Mobilizer this would definitely make a marked difference in profitability of beetroot production.

This is an exceptionally good result and we would not expect this sort of increase to be repeated on the same block, however it is not abnormal to get upwards of 10% increase in production through the use of Mobilizer allowing increased mobilization and utilisation of what would normally be locked up or leached nutrients.

The general rate of Mobilizer is 1-2 applications @ 2L/Ha and therefore at a cost of under \$40.00 / Ha there is a significant potential profit benefit.