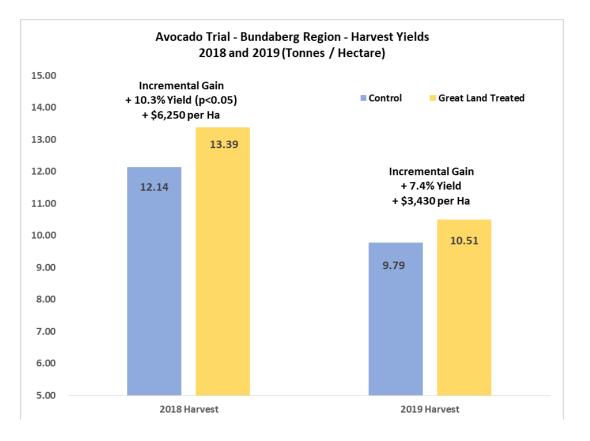|	
TRIAL REPORT: **August 2019**	**Avocados (Hass) - Bundaberg Region, QLD** **Replicated strip trial – three seasons. Independently overseen and reviewed**

Aim: To determine the effect of Great Land treatment on harvest yield and grading of avocados.

Farm System: Conventional, Hass variety, planted in 2013. Planting 8m x 6m rows, 208 trees per hectare. Red loamy soils. Sprinkler irrigation and fertigation system. High input nutrient program. Fertilisers include gypsum (spread), soft rock phosphate, humate and trace minerals.

Trial Design & Scope: Strip field trial – replicated in final two years. Trial paddock area 2.9 hectares, approximately 600 trees. Seven rows (replicates) for each of treated and control experimental groups. Every alternate row was treated with Great Land, remaining rows were untreated controls. One outside row from each side of the block was excluded from data to remove edge effects.

Treatments: Great Land applications through the sprinkler fertigation system commenced in early December 2016 and were continued on a quarterly basis at 10 Litres per hectare at each application. Specific timing aimed to cover root flush and flowering periods. All other agronomic practices were applied consistently across the whole block.

Seasonal Conditions: 2017 and 2018: good growing conditions, at or above average rainfall. 2019: hot dry summer preceded by a severe hail and wind storm during fruit set.

Assessments: In the last two harvests, 2018 and 2019, individual rows were harvested and graded separately to obtain replicate data on yield and fruit size. Yield data from the first harvest, 2017, was not replicated.

Results: For each of the three years, 2017, 2018 and 2019, average yield on rows treated with Great Land was 13%, 10.3% and 7.4% higher than the control rows, respectively. The chart below represents replicated yield data for the last two harvests.

Avocado Trial - Bundaberg Region - Harvest Yields
2018 and 2019 (Tonnes / Hectare)

Incremental Gain
+ 10.3% Yield (p<0.05)
+ $6,250 per Ha

Incremental Gain
+ 7.4% Yield
+ $3,430 per Ha

■ Control   ■ Great Land Treated

2018 Harvest: Control 12.14, Great Land Treated 13.39
2019 Harvest: Control 9.79, Great Land Treated 10.51

Results
(continued)

In 2018 the difference was statistically significant however in 2019 the difference was not significant due to higher variability within treatments. Fruit size did not differ between treated and control rows in both seasons.

Yield variation within treatments (between rows) in the 2019 harvest was more than double that of the 2018 harvest. In addition, overall yield for the total block in 2019 was 20% lower than 2018. Both outcomes are understood to have arisen from the combined impact of severe hail and wind damage during fruit setting of the 2019 crop, and a two-month delay in subsequent harvesting due to market factors.

On the basis of average yield gain from treated rows, the incremental gross margin benefit achieved in each of the last two seasons was $6,250 per ha and $3,340 per hectare for 2018 and 2019, respectively, after deducting the cost of Great Land at $170 per hectare.

Discussion:

Higher avocado fruit yield was achieved for three consecutive seasons on rows treated with Great Land compared to untreated rows.   Larger variability of yields recorded in the third season was strongly influenced by a severe hail storm during the period of fruit set and a late harvest.

Packout data from both seasons showed no difference in fruit size between treatments. Further research could aim to determine if the additional yield achieved is derived from either improved flowering/ fruit set or increased weight density of fruit.