

Almonds | Trial Sheet

Mycorrcin long-term trial, Griffith NSW



Background



Biostart Mycorrcin was tested in a three-year side-by-side trial along with four other biological products in a newly established almond orchard in Griffith, NSW. The trial assessed the agronomic, yield and soil benefits of adding biological products to the existing agrichemical and fertiliser programme.

How it works

Biostart Mycorrcin is a soil biostimulant that activates beneficial soil microbes, which stimulate healthy root growth and development leading to higher nutrient uptake, faster crop establishment and higher yields in young trees.

Trial Description

A three-year trial was conducted on a newly developed almond orchard (Mandolé Orchard; variety Shasta) in Lake Wyangan, Griffith, NSW, starting in 2019. The almond trees were two-years-old when the trial started and five-years-old in the third year of the trial. Mycorrcin was one of five products included in this comparative trial conducted by Elders Rural Services.

The biostimulant component of the programme involved applying Mycorrcin three times over the growing season, including at flowering (August) 6L/ha; nut set/fill (October) 3L/ha; and nut fill/hull split (December) 3L/ha. All other fertilisers and agrichemical applications were the same for the untreated and Biostart-treated trees throughout the trial.

Assessments were made of flowering, nut set, yield, soil microbiology and canopy health using drone technology.



June 2019 – before trial



April 2021 – end of year 2

Results

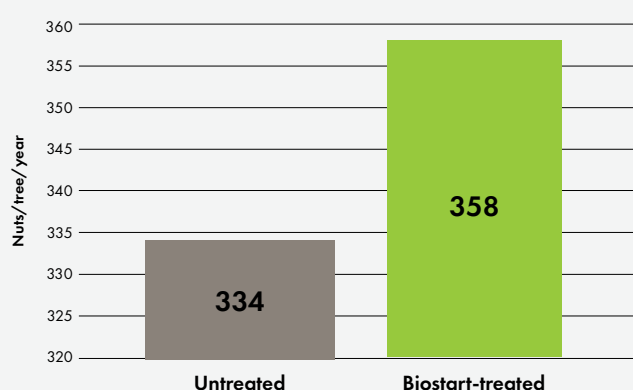
Increased trunk size

The Biostart programme increased the trunk butt growth by 4% per year during the three-year trial, from 22.8% (untreated trees) to 23.6%.

Increased Nut Set

The Biostart-treated trees were the top performers in the comparison trial and had the highest nut count, which was 7% above the control trees (Figure 1).

Figure 1. Average Nut Count





Increased Yield

The higher nut set resulted in the highest total nut and kernel yield per tree (Figure 2 and 3) for the Mycorrcin-treated trees. Over the three-year trial, Mycorrcin increased the total nut yield per year by 6% (0.88 kg/tree/year) and increased the kernel yield by 7% (0.34 kg/tree/year). This equated to another 364 kg kernels/ha over the three years of the trial, occurring at a time when nut yields and returns are low in establishing orchards.

Most of the returns and yield increase happened in year three of the trial (five-year-old almond trees).

Improved soil microbial balance

The soils were analysed using the SWEP microbial tests over the four years of the trial. The Mycorrcin programme improved the soil biology balance by greater than 50% when compared to the untreated control.

Increased Return on Investment

The Biostart programme produced an extra net \$611/ha over the three-year trial, this is an equivalent return on investment of 97%. Competitor product programmes produced lower returns with ROIs over the trial ranging from -85% to 85%.

Conclusion

The trial showed that regular applications of Mycorrcin in a young almond orchard increased the size of the trees, improved the soil biology, increased nut set, and the weight of both nuts and kernels. Mycorrcin produced a 7% increase in kernel yield and had a 97% ROI, which was higher than the other four biological products trialled.

Figure 2. Average Total Nut Weight

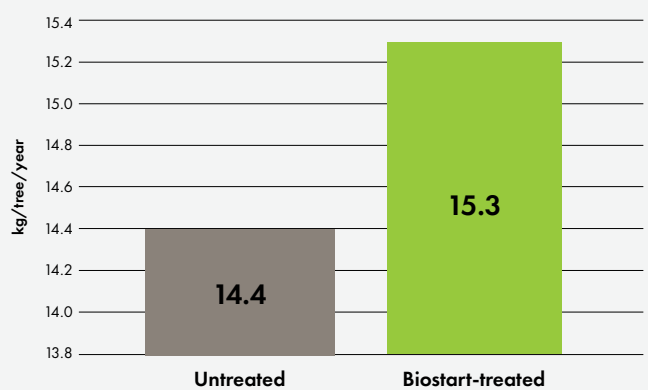
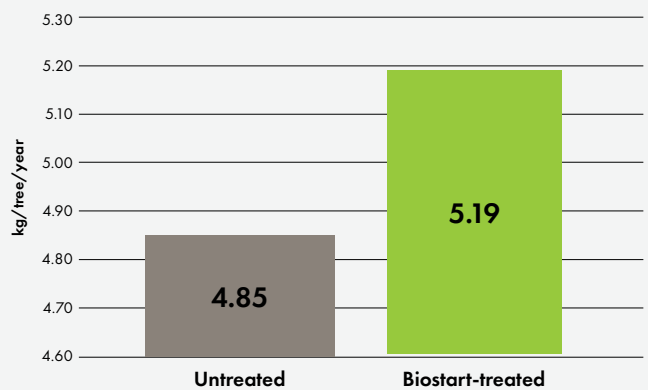


Figure 3. Average Kernel Weight



Note: nut weight includes the almond shell. Kernel weight is free of the shell.

Table 1. Return on investment over three years

\$/ha/3 years	Standard	Biostart
Return	\$10,044.06	\$11,251.89
Programme cost		\$611.846
Gross revenue	\$10,044.06	\$10,640.05
Increase/decrease returns		\$595.99
ROI		97%

