Using compost on Coonawarra's high carbon soil

Location: 15km north of Penola, South Australia

Objectives:

- Assess the impact compost has on the growth and productivity of beans.
- Assess the ameliorating properties of different rates of compost in a high carbon Coonawarra soil.

Background:

This trial studies the plant response of beans grown in black loamy soil in the Coonawarra when different rates of compost are applied prior to sowing. This paddock has rocks present and was reefinated 2 years prior to compost application.

Crop Type: Beans

Soil Type: Black clay loam

Start date: 20/05/2025

End date: 31/12/2025

Treatments:

- Control – No compost applied
- AgriGro – Spread at 5t/ha
- AgriGro – Spread at 10t/ha
- AgriGro – Spread at 15t/ha

AgriGro is a high-quality base compost designed for broad agricultural use.

Trial Measurements:

- Biomass and phenology – Monitored 2-3 times during the growing season.
- Grain yield – Measured at harvest

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Summary:

- Plant response varied between the plots. Some of these results cannot be explained by the rate of compost applied.
- The two biomass samples taken in August and September show similar trends. However, these trends in biomass do not directly correlate with estimated grain yield.
- Grain weight is positively correlated with compost rate of application.
- Rocks in the soil may have impacted trial results. The 5t/ha and 15t/ha plots seemed to have more rock than the 0t/ha and 10t/ha. Other factors such as pests and disease may also have had an impact.
- This trial should be repeated next year to find conclusive results. This trial may need to be repeated at a different site to remove the impact of rocks in the soil.

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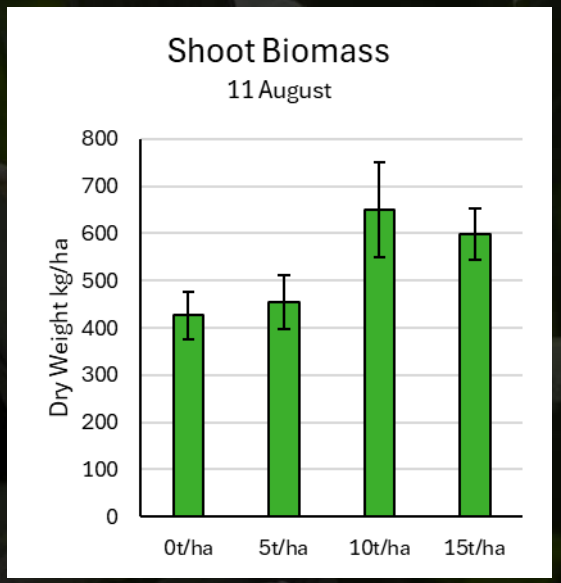
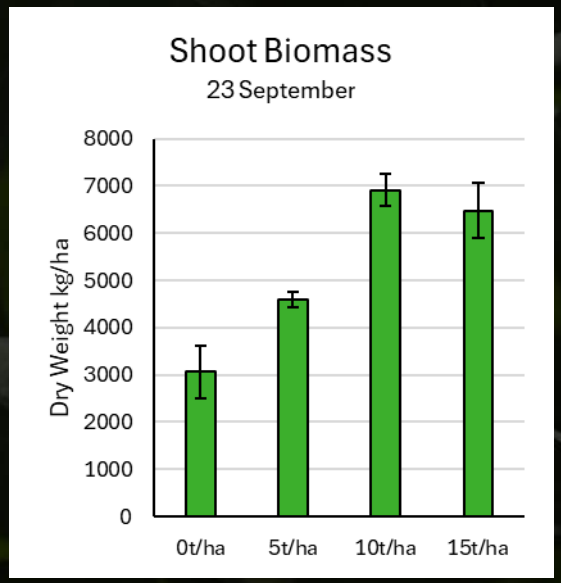
Results:

- Six biomass samples were collected from each plot on the 11th of August and three on the 23rd of September.
- All compost treatments have greater shoot biomass when compared to the control.
- The treatments demonstrate similar trends over the two sample dates.
- Unexpectedly, the 10t/ha treatment has greater biomass compared to the 15t/ha plot. This may be due to unknown factors influencing trial results, for example variation in soil or pressure from disease.





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Results:

- Yield estimates were collected on the 9th of December. Four samples were collected from each plot.
- Plants and beans were mostly green although the hilum had blackened, indicating beans had reached their maximum size.
- Patches of lodging were evident across all plots with and observably more dried beans in the 10t/ha compared to the other treatments.
- The control performed unexpectedly well compared to the compost treatments in estimated yield, despite smaller bean size.
- Grain weight is positively correlated with rate of compost applied.