

CASE STUDY

FOGO compost trial improves cotton yield by up to 25% and boosts soil moisture retention

FARM LOCATION WSU Hawkesbury Riverfarm, NSW
TRIAL PERIOD November 2024 to September 2025



The trial

At WSU Hawkesbury Riverfarm in NSW, a field trial was conducted to assess the impact of Food Organics and Garden Organics (FOGO) compost on cotton crop performance and soil health. Compost was applied at 10t and 20t per hectare and compared with an untreated control.

The baseline soil was a heavy, clay rich profile with moderate bulk density and strong nutrient holding capacity, but showed signs of compaction, low potassium and slight deficiency in organic matter.

Compost was applied before sowing, and the crop was managed using standard cotton practices. Early weeding was done manually, followed by selective herbicides and inter row mowing. From November 2024 to March 2025, overhead irrigation was applied two to three times per week, before transitioning to rainfed conditions after cut out in early April. Defoliation was applied on 7 May, with boll picking and post harvest soil sampling completed on 30 May.

Treatments

- T1: Control – 0t per hectare (no fertiliser or compost)
- T2: Low compost - 10t per hectare
- T3: High compost – 20t per hectare

Results

Overall, the trial found that FOGO compost delivered measurable improvements in cotton growth, fruiting and yield, while also improving soil moisture retention (Figure 2) and showing early indicators of enhanced soil structure. Soil moisture rose by 6.63% at the 10 t/ha application rate and 13.12% at the 20 t/ha application rate compared with the control.

At 20 t/ha, plants developed around 9–11% more flowers early in the season, and by harvest they produced around 20% more bolls per plant compared with the control.

Boll retention was similar across treatments, but compost treated plants formed and carried more flowers and bolls through to harvest, helping them perform under pest and rainfall pressure.

Yield responses were strong and consistent. Plants receiving compost produced around 20% more yield at 10 t/ha and around 25% more at 20 t/ha compared with untreated plants. Lint yield (Figure 1) followed a similar pattern, with compost plots producing approximately 9.2–9.6 bales/ha, compared with 7.7 bales/ha in the control.

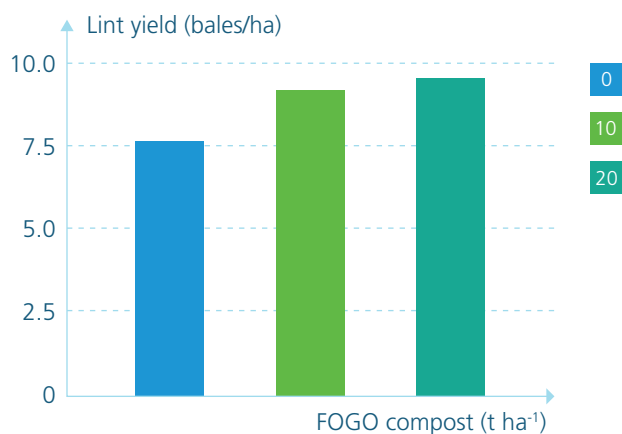


Figure 1
FOGO compost enhanced cotton productivity at plant and field scale, across both applications.



Early growth stage of the cotton plant

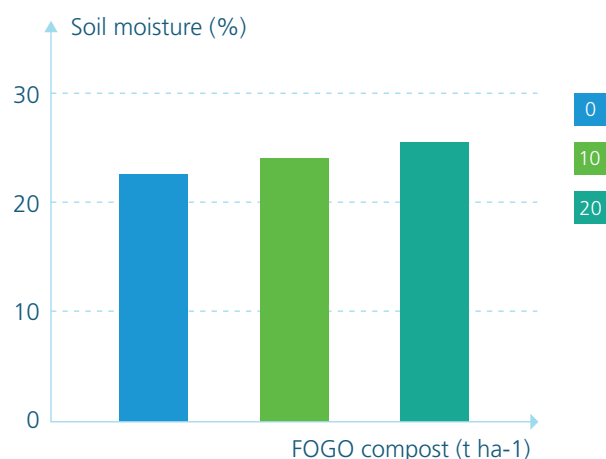


Figure 2
FOGO compost significantly increased soil moisture, rising by 6.63% in the 10t/ha application, and 13.12% at 20t/ha.



Cotton flowering stage

About Cleanaway compost

Cleanaway compost is manufactured in Cleanaway's Eastern Creek Organics facility. Made from food organics and garden organics (FOGO), which includes food scraps and garden clippings from local households, this product recycles valuable nutrients, reduces greenhouse gas emissions and contributes to the circular economy by reducing waste and promoting sustainable practices. Cleanaway is excited to be recovering and returning these valuable nutrients back to farmland, helping to enrich soils, support healthier ecosystems and make a sustainable future possible.



Lint producing phase, towards the end of the crop, ready for harvest.

Disclosure

The trial was designed and supervised by Western Sydney University.
Spreading and management were undertaken by Western Sydney University staff.
The trial was funded jointly by Cleanaway and Western Sydney University to cover sampling, analysis, trial design and monitoring.