Broccolini – Australia – Wallaroo – 2024

Overview

- This report is about a science trial conducted under the supervision of the Drought Innovation Hub of Southern Queensland and Northern New South Wales, and The University of Southern Queensland, Australia.
- The goal of this trial is to test and quantify the possible effects of Kyminasi® Crop Booster™ (KCB) technology on the drought resilience of broccolini crops in Queensland.

Photo: Agriffin

Time

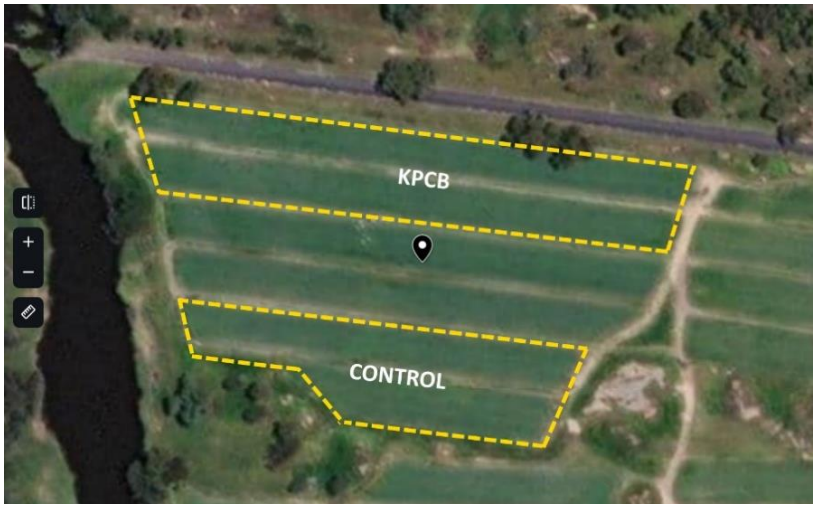
- Control Planting Date: 9/23/24
- KCB Planting Date: 9/16/24

Crop

- Species: Broccolini
- Variety: n/a

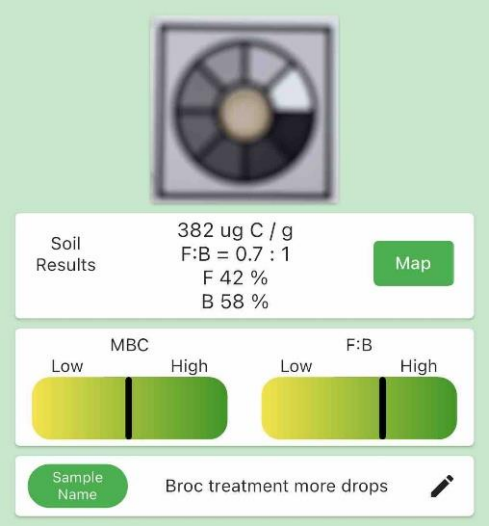
Location

- Wallaroo Produce (John Patane), Severnlea, Queensland, Australia
- Field: West Road
- Coordinates of KCB field:
  28°39'41.8"S
  151°54'45.2"E

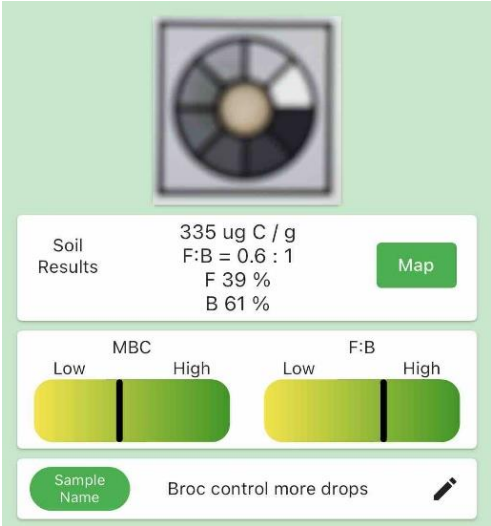


Soil Microbiology Test

Soil tests were taken on March 5, 2025, using MicroBIOMETER® https://microbiometer.com



KCB



Control

Observations

- Both fungal/bacterial (F:B) ratio were in good range for broccolini [Ohio State[(a)]; Texas A&M[(b)]].
- According to Eurofins experts[(c)], the F:B ratio for such a plant should be higher (within range) and in this case we see that F:B ratio in KCB broccolini was 13.3% higher than control broccolini.
- Microbial Biomass Carbon (MBC in the screenshots above, expressed in micrograms of carbon per gram of soil sample) was in normal range on both sides, with KCB measured 14% higher than control.
- The fact that both factors – carbon/gram ratio and fungal/bacterial ratio – were significantly higher with KCB, demonstrates its positive effect on soil health with broccolini.

References

(a) Role of Soil Fungus, https://ohioline.osu.edu/factsheet/anr-37

(b) Fungi to bacteria ratio chart, https://txmn.org/elcamino/files/2010/03/fungi-to-bacteria-ratio-chart.pdf

(c) *"The fungi/bacteria ratio indicates the proportion of fungal biomass in relation to bacterial biomass, and is expressed in mg C / kg. This ratio is calculated by dividing carbon in fungal biomass by carbon in bacterial biomass.*

*In general, undisturbed ecosystems have a **higher fungi/bacteria ratio** than disturbed systems.*

*Organic and low-input systems have a **higher fungi/bacteria ratio** compared to enriched conventional systems.*

***Disturbances** such as **tillage and the removal of crop residues** can lower the fungi/bacteria ratio."*

Aurofins (Eurofins-Agro.com) is a worldwide organization of agri-labs headquartered in the Netherlands. https://www.eurofins-agro.com/en/fungal-bacterial-ratio

Yield* Results

Cutting Date	KCB, kg	Control, kg	GAIN
11/12/2024	3,801		
11/14/2024	2,579		
11/16/2024	920	495	
11/18/2024		2,432	
11/19/2024	802		
11/20/2024		1,963	
11/22/2024	1,096		
11/23/2024		1,181	
11/25/2024	1,758		
11/26/2024		1,850	
11/28/2024	1,935		
11/29/2024		1,098	
12/02/2024	2,869		
12/03/2024		2,220	
12/06/2024		1,493	
12/07/2024	980		
12/10/2024		1,801	
12/12/2024	1,292		
12/13/2024		858	
12/18/2024	691	923	
Totals:	**18,723**	**16,314**	**+15%**

* Note: these results were measured per complete row.

Conclusions

- Microbiology analysis demonstrated that carbon/gram ratio and fungal/bacterial (F:B) ratio in KCB broccolini were 13.3% higher vs. Control.
- Carbon (carbon per gram of sample) was 14% higher with KCB vs. Control.
- Preliminary per-row results show 15% higher broccolini production with KCB vs. Control.
- For full analysis of the sustainability aspects of growing broccolini in Queensland, Harvest Harmonics recommends performing the Profitability Optimization Protocol for Sustainability (POPS). The complete protocol is available upon demand from science@harvestharmonics.com