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PENINSULA  
PROVIDORE

# COMPOST TRIAL

LANDCARE SMART FARMS

SMALL GRANT





# Welcome Message

## Introduction

In the spirit of reconciliation Peninsula Providore and I acknowledge the Traditional Custodians of country throughout Australia and their connections to land, sea and community.

In particular we acknowledge the Ngarrindjeri people who were the traditional custodians of our groves and the Ngunnawal people who's land we are on today. We pay our respect to their Elders past, present, and emerging and extend that respect to all Aboriginal and Torres Strait Islander peoples.





# About Us

## Who We Are

Peninsula Providore was conceived in 2016 with the purchase of the Currency Creek Grove, 10,000 trees neglected for 10 years. In 2019 we purchased Nangkita Olive Grove, with 6,800 trees also in a questionable state of health.

I am the founder, and owner of Peninsula Providore and am bringing my wine industry skills and knowledge to our business.



PENINSULA  
PROVIDORE

## Current

Mel and a team of 3 part-timers  
managing 17,000 trees



## Mission

We aim to be the pre-eminent Fleurieu Peninsula Providore, grower and maker of premium quality extra virgin olive oil, whilst being responsible stewards of the lands which we are farming. We aim to leave our place in a better situation than when we got here, and champion sustainable and regenerative farming, sustainable finances and community.



# National Landcare Program; Smart Farms Small Grants



## Location

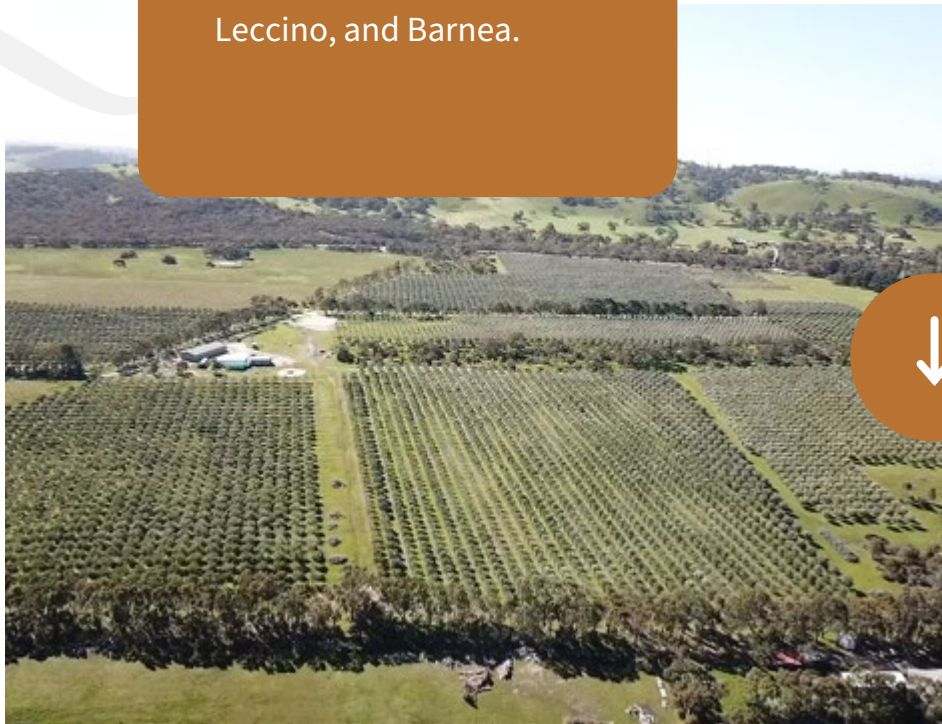
We completed our compost trial on our Nangkita Olive Grove across Frantoio, Leccino, and Barnea.



## PROJECT VISION

Identify and implement best practice sustainable agriculture management techniques for improving soil health and water use efficiency and hence productivity for the Australian Olive Industry.

Support the development and adoption of best practices that improve the management and quality of our natural resources and increase on-farm productivity.





Regenerative  
Agriculture aims

**IMPERFECT ACTION is  
better than perfect  
inaction.** Harry S Truman.



**Builds healthy  
organic soil**

**Improves  
soil health  
& structure**

**Reduces  
erosion**

**Increases  
production**



**Increases farm  
productivity**

**Reduces  
exposure to  
chemicals**

**Reduces  
costs**

**Improves  
quality of life**



**Protects local  
environments**

**Reduces  
use of  
chemicals**

**Improves  
biodiversity**

**Reduces  
pollution**



**Benefits  
consumers**

**Improved  
quality  
of food**

**Diversity  
of diets**

**Increased  
nutrition**



**Reverses  
climate change**

**Improves  
carbon  
sequestration**

**Flood/drought  
reduction**

**Reduces  
on-farm fuel  
usage**



# Trial

## Activities



01

### Planning

Trial application rates and deciding which parts of the grove to include based on varieties and half irrigation blocks

02

### Testing

Soils tests:

- November 2021
- September 2023

Leaf Tests:

- February 2022
- January 2023

03

### Installation

- earthworks
- Soil moisture monitors

04

### Compost Application

- December 2021
- January 2023

05

### Results

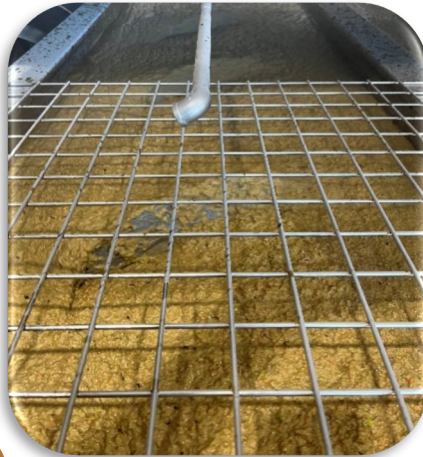
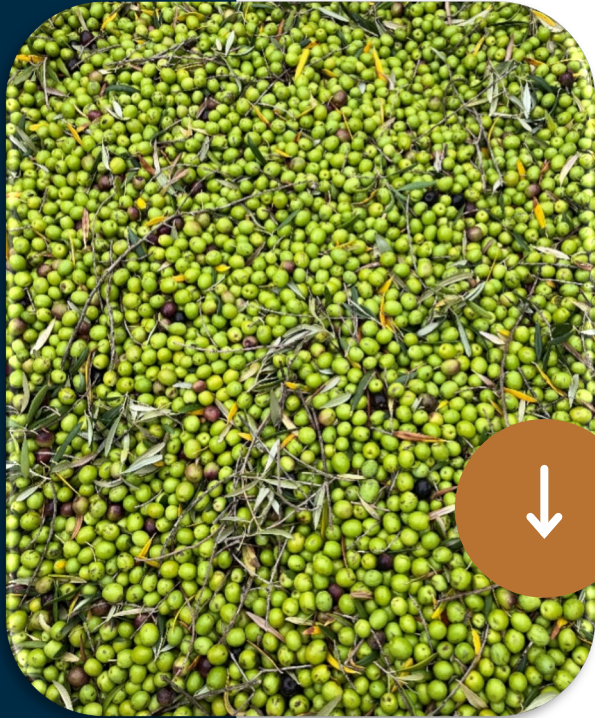
Harvest figures included for discussion – 2021, 2022 and 2023.





Nangkita  
Grove



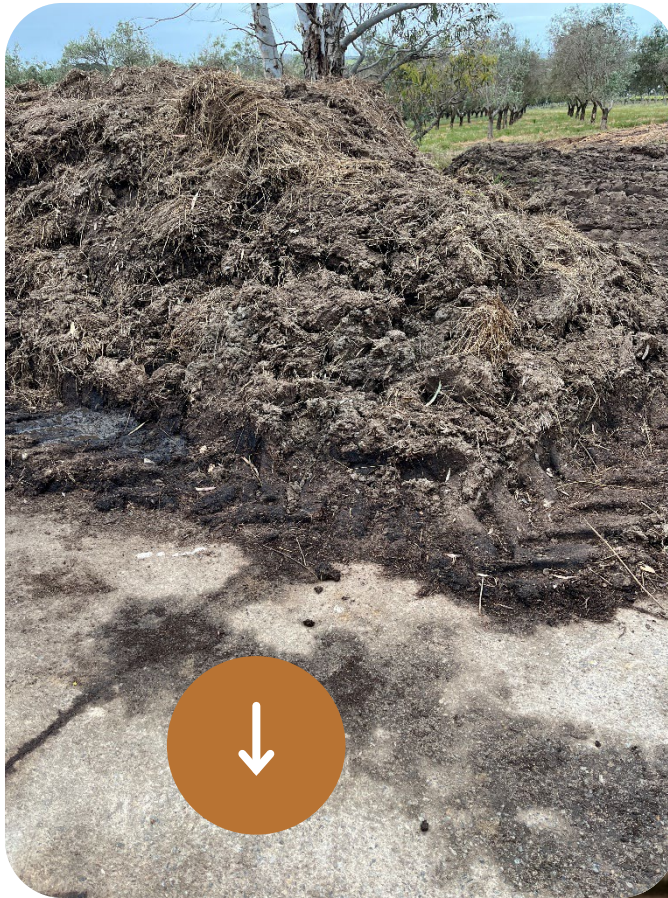


# COMPOST journey

Imperfect Action...





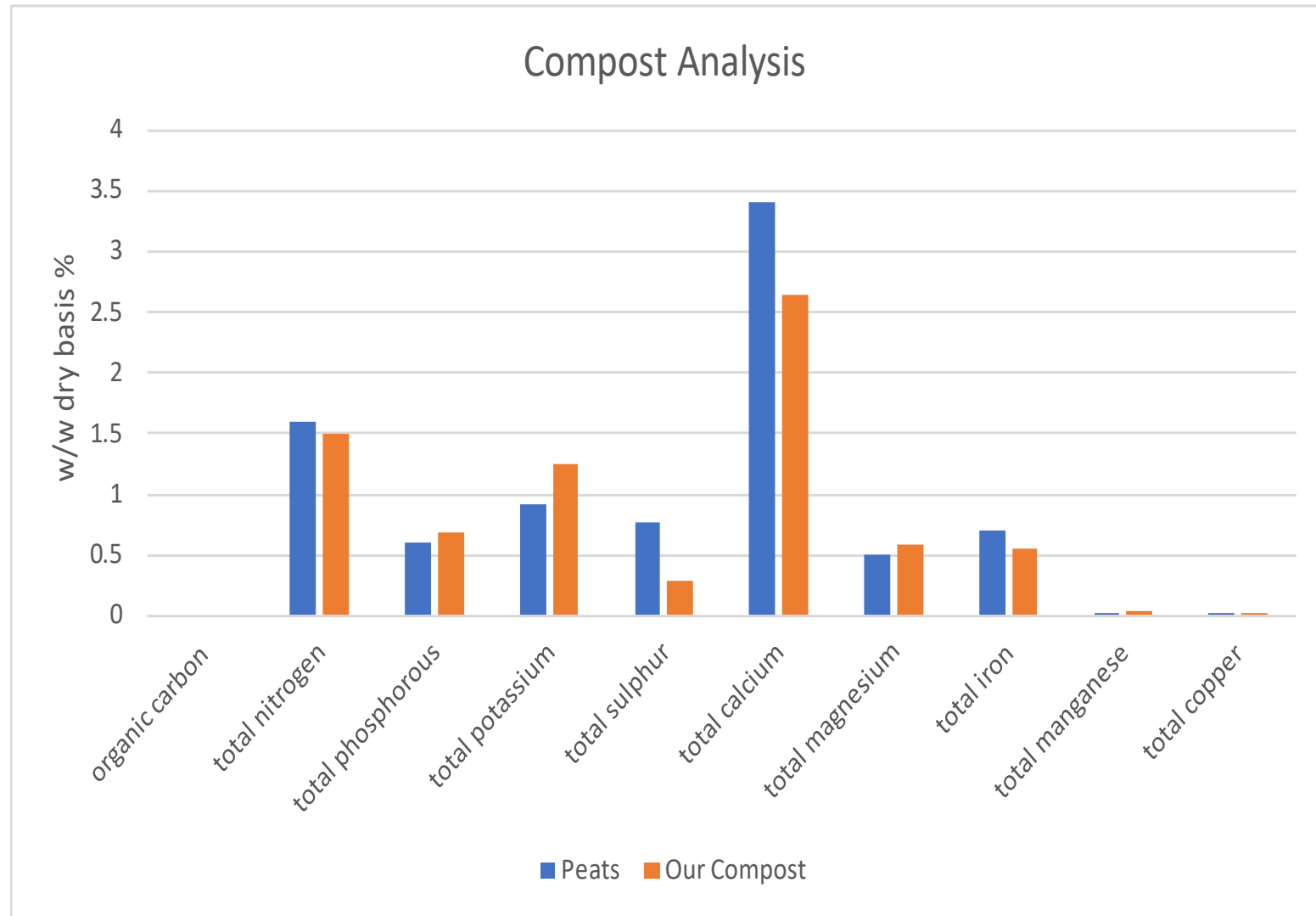


Compost Piles...





# Compost Analysis



# Spreading Compost

Imperfect!





# Soil Test results

## Imperfect!

	D	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ
	10/10/2021	10/09/2023																																											
Section	Nitrate	Ammonium	Phosphorus	Potassium	Sulphur	Calcium	Magnesium	Copper	Zinc	Manganese	Iron	Boron	Organic Carbon	PBI	Exchangeable Cations Calcium	Exchangeable Cations Magnesium	Exchangeable Cations Potassium	Exchangeable Cations Sodium	Exch.Aluminium	Exch.Hydrogen	Ca:MgRatio	K:MgRatio																							
1a	1	1.2	23	70	5.7	913	739	133	110	1.4	120	0.43	1.71	24	76.4	18.4	3	1.7	0.3	0	4.2	0.16																							
1b	2.2	3.3	23	57	7.2	42	1090	115	95	0.46	0.77	2.4	1.5	12	34	51	0.50	0.59	1.53	1.17	16	4	61.0	15.7	14.2	15.7	2.2	2.2	1.5	1.2	0.3	0.4	0	5.7	0.15	0.16	0.17	0.18							
1c	1.1	1.3	52	69	6	829	734	112	104	1.3	0.19	4.3	2.4	1.5	140	100	0.47	0.29	1.49	1.54	42	16	77	77.4	17.1	16.9	2.9	2.9	2.6	1.2	0.4	0.4	0	4.9	0.17	0.18	0.19	0.20							
1d	1	2.7	1	9	14	792	2419	121	106	1.2	0.78	7.2	1.4	2	5	22	0.4	0.89	1.24	1.54	9	14	74.3	18.9	18.9	9.3	3.2	2.2	2.3	0.4	0.4	0.4	0	7.1	0.16	0.17	0.18	0.19							
1e	4.9	1.4	1	16	39	70	112	3.9	4.4	830	959	112	100	1.5	5	2.4	1.6	0.39	0.19	1.22	1.03	24	16	77.4	78.7	17.2	14.7	3.3	4.3	1.7	1.5	0.4	0.3	0	4.5	0.19	0.32	0.33	0.34						
1f	1	1.2	1	1.8	14	744	628	91	67	1.7	3.4	2.3	1.3	1.2	91	200	0.37	0.44	1.61	1.63	21	33	70	70.3	16.9	13.4	2.7	1.7	1.8	0.4	0.3	0	4.4	0.16	0.17	0.18	0.19								
1g	1	1	1	8	17	56	44	14	3	1100	692	120	85	0.87	0.52	2.4	1.3	0.59	0.48	1.01	1.3	10	14	79.7	79.3	14.3	16.1	2.1	2.4	0.3	0.4	0	5.6	0.15	0.16	0.17	0.18								
1h	2.1	2.2	17	24	73	6	836	1019	95	133	1.2	0.47	2.2	8	2.3	2.2	160	100	0.45	0.54	1.61	1.53	37	16	79.1	77.2	14.3	16.1	2.7	3.0	0.4	0.3	0	5.3	0.16	0.19	0.20	0.21							
1i	1.9	1.1	19	76	3.2	647	649	149	124	1.3	1.4	4.2	1.5	1.2	16	24	0.43	0.24	1.55	1.52	16	7	73.9	79.3	20.1	14.4	2.4	2.4	0.3	0.4	0	7.7	0.17	0.18	0.19	0.20									
1j	3.4	2.4	12	52	64	3.9	3	912	832	133	100	1.4	1.4	2.4	1.2	1.1	74	1.3	0.42	0.52	1.22	1.47	31	22	76.8	79.7	16.5	15.1	3.1	1.2	0.3	0.4	0	4.2	0.17	0.19	0.20	0.21							
2a	1	1.1	14	59	6.3	612	612	89	93	1.2	1.5	2.4	2.4	1.4	199	100	0.46	0.40	1.07	1.3	27	38	77.1	75.4	16.6	15.9	3.2	3.1	2.4	2.4	0.5	0.5	0	4.4	0.16	0.17	0.18	0.19							
2b	1	1	1	49	5.8	1020	722	95	94	0.97	0.78	2	1.8	1.6	84	45	0.56	0.59	1.12	1.15	17	16	80.3	79.9	12.7	19.7	2	2.1	1.9	1.5	0.2	0.4	0	4.5	0.16	0.17	0.18	0.19							
2c	1.5	2.4	1.3	33	49	8.1	3	760	799	90	124	1.5	0.84	3	2.2	1.6	200	100	0.43	0.39	1.69	1.7	40	20	78.6	75.8	15.8	16.4	2.1	2.4	0.4	0.4	0	5.3	0.17	0.18	0.19	0.20							
3a	1	1	1	46	6.2	895	913	81	54	0.89	0.8	2	1.4	1.4	49	81	0.32	0.44	1.32	1.45	11	16	81.5	86.9	13.5	8.5	2.4	2.1	2.2	1	0.4	0.4	0	4	0.15	0.16	0.17	0.18							
3b	1	1.1	1	21	18	5.2	4.4	822	1069	907	99	0.7	0.33	1.3	3.2	1.1	2.2	0.39	0.63	1.31	1.13	25	24	79.6	82.2	13.7	14.1	1.3	1.3	0.4	0.3	0	4.7	0.15	0.16	0.17	0.18								
3c	1	1.3	21	29	8.7	773	679	95	82	0.99	0.67	2.5	1.9	1.9	93	92	0.50	0.47	1.29	1.33	26	17	78.5	80.6	15.9	16.2	2.7	1.7	2.5	1.3	0.4	0.5	0	4.9	0.16	0.17	0.18	0.19							
4a	1.3	1	1	15	39	5.9	3.2	999	955	139	94	1.5	1.3	1.4	88	91	0.50	0.74	1.32	1.45	24	23	79.4	82.6	17.0	13.6	2	1.7	2.2	1.5	0.3	0.3	0	4.4	0.15	0.16	0.17	0.18							
4b	1	1	8	18	36	50	7.5	3.2	792	799	74	1	0.82	2	1.5	2.2	1.5	0.42	0.51	1.63	1.13	24	22	82.2	80.7	12.6	14.6	1.9	2.4	2.4	1.5	0.4	0.4	0	6.4	0.15	0.16	0.17	0.18						
4c	1.7	1.2	1	43	26	69	59	8	3.2	1140	654	162	94	2.1	0.75	7.3	2.2	1.3	2.2	1.3	110	93	71	65	2.24	1.52	20	11	77.1	81.2	18.1	14.7	2	2.0	2.2	0.6	0.3	0.4	0	4.3	0.15	0.16	0.17	0.18	
4d	1	1.1	1	26	39	8	844	899	124	112	1.17	0.9	2.4	1.4	100	140	0.53	0.46	1.72	1.89	84	24	74.7	75.7	17.7	19.9	2.4	2.5	3.9	0.3	0.4	0	4.2	0.16	0.17	0.18	0.19								
4e	1	1	1	26	39	8	876	654	124	1.17	0.9	2.4	1.4	100	140	0.53	0.46	1.72	1.89	84	24	74.7	75.7	17.7	19.9	2.4	2.5	3.9	0.3	0.4	0	4.2	0.16	0.17	0.18	0.19									
4f	2.3	1.8	1	1	31	39	23	6.6	30	909	143	92	35	1.1	0.63	2.6	1.2	1.1	1.1	1.1	110	110	0.52	0.23	1.05	1.27	15	20	80.2	80.2	12.4	15.3	1.4	1.1	1.9	1.4	0.4	0.5	0	4.1	0.15	0.16	0.17	0.18	

Further investigation required:

- No compost looks like it has reduced phosphorous
- No compost low exchange cations potassium
- But also, 20m3 and no compost looks like low manganese
- 20m3 has low exchange cations sodium
- NO REAL CONCLUSIVE RESULTS AS EXPECTED – short term results

# Leaf Test results

## Imperfect!

16/02/2021 11/02/2022 24/01/2023																							
Nitrogen			Nitrate - N			Sulfur			Phosphorus			Potassium			Magnesium			Calcium			Sodium		
Section																							
1a		1.39	1.04	30	30		0.15	0.15	0.17	0.16		1.8	1.44		0.14	0.12		0.779	0.875		0.034	0.064	
10b		1.23	1.16	30	30		0.13	0.13	0.17	0.14		1.66	1.43		0.13	0.14		1.06	1.05		0.037	0.03	
3a		1.57	1.25	30	30		0.13	0.15	0.23	0.2		1.51	1.1		0.09	0.092		0.581	0.859		0.037	0.049	
6a	1.2	1.39	1.19	30	30	0.13	0.13	0.15	0.17	0.18	0.21	1.16	1.67	1.45	0.15	0.086	0.075	1.07	0.563	0.719	0.067	0.041	0.043
7																							
1b		1.67	1.84	30	30		0.15	0.15	0.18	0.19		1.51	1.36		0.14	0.12		0.834	0.816		0.038	0.034	
3b		1.25	0.98	30	35		0.15	0.14	0.17	0.14		1.71	1.36		0.15	0.13		0.838	0.869		0.044	0.068	
3b		1.06	0.91	30	30		0.11	0.12	0.13	0.098		1.46	1.35		0.14	0.17		0.882	0.973		0.048	0.091	
3b		1.38	1.51	30	30		0.13	0.15	0.22	0.2		1.48	1.2		0.1	0.094		0.847	0.751		0.029	0.048	
6b		1.38	1.32	30	30		0.13	0.14	0.17	0.18		1.47	1.33		0.13	0.13		0.675	0.791		0.052	0.057	
12																							
2a		1.92	1.27	30	30		0.15	0.14	0.21	0.15		1.43	0.949		0.12	0.11		0.688	0.836		0.04	0.038	
3a		1.25	1.08	30	33		0.14	0.13	0.15	0.14		1.57	1.22		0.16	0.16		0.761	0.878		0.047	0.057	
4b		1.27	1	30	30		0.13	0.14	0.17	0.13		1.67	1.4		0.12	0.15		0.812	1.06		0.03	0.044	
4b		1.22	1.17	30	30		0.13	0.14	0.21	0.18		1.38	0.909		0.093	0.09		1.04	1.12		0.036	0.048	
5a		1.02	0.94	30	30		0.12	0.12	0.13	0.12		1.57	1.52		0.12	0.11		1.01	0.934		0.06	0.051	
11a		1.28	1.11	30	30		0.12	0.13	0.16	0.14		1.62	1.45		0.13	0.14		0.811	0.9		0.03	0.033	
8a		1.16	1.02	30	30		0.15	0.14	0.2	0.21		1.33	0.917		0.13	0.13		1.03	1.39		0.032	0.024	
5b		1.01	0.91	30	30		0.12	0.12	0.14	0.13		1.58	1.5		0.094	0.08		0.83	0.782		0.041	0.037	
11b		1.28	1.22	30	30		0.12	0.14	0.18	0.17		1.56	1.49		0.12	0.12		0.803	0.903		0.043	0.034	
8b		1.11	0.93	30	30		0.14	0.15	0.19	0.2		1.29	1.04		0.12	0.14		0.82	1.3		0.029	0.028	
2b		1.22	1.09	30	30		0.13	0.13	0.14	0.13		1.44	1.35		0.16	0.15		0.835	0.853		0.054	0.073	
10a	1.07	1.15	1.03	30	30	0.13	0.12	0.14	0.15	0.14	1.31	1.65	1.4	0.16	0.12	0.15	1.13	0.868	1.2	0.039	0.029	0.04	
4a		1.17	1.18	30	30		0.15	0.14	0.19	0.18		1.18	0.927		0.13	0.1		1.26	1.06		0.04	0.039	
Section		Chloride		Iron		Aluminium		Manganese		Boron		Copper		Zinc		Molybdenum							
1a		0.35	0.27	37	64	32	45	94	130	21	24	6.3	5.1	22	20	0.14	0.63						
10b		0.23	0.16	48	43	45	35	140	100	28	33	6.7	5.4	27	20	0.17	1.8						
3a		0.4	0.29	35	67	23	35	56	63	24	30	13	8.2	26	24	0.031	0.43						
6a	0.1	0.26	0.11	67	40	31	47	72	110	18	25	8.3	7.3	17	30	0.2	0.54						
7		0.28	0.24	44	40	28	21	63	44	27	34	9.7	9.9	23	22	0.12	0.18						
1b		0.31	0.32	44	66	41	45	150	100	21	25	5.2	4	25	17	0.17	0.42						
3b		0.22	0.22	46	87	50	110	130	170	23	23	5.9	5.1	25	28	0.15	0.7						
3b		0.39	0.38	37	62	24	30	88	46	25	29	10	9.7	26	23	0.083	0.29						
6b		0.22	0.16	38	48	34	43	99	110	19	26	6.5	6.9	21	20	0.14	0.24						
12		0.33	0.16	36	44	23	34	45	110	29	21	11	4.9	26	26	0.15	0.31						
2a		0.34	0.26	47	77	40	44	140	96	21	25	6.1	4.6	25	18	0.18	0.32						
3a		0.25	0.17	39	57	34	56	120	200	30	32	7.4	5.4	25	29	0.16	0.82						
4b		0.37	0.29	43	70	36	35	110	77	26	28	7.5	6.6	23	20	0.079	0.43						
5a		0.3	0.22	70	74	86	69	170	130	21	25	5.8	4.3	28	22	0.15	0.21						
11a		0.25	0.17	42	43	42	33	100	95	27	32	7.1	5.9	22	18	0.1	1.5						
8a		0.33	0.15	39	58	32	49	140	100	25	28	7.1	6.6	29	21	0.12	0.17						
5b		0.29	0.23	54	49	57	48	160	100	22	25	5	4.5	25	18	0.17	0.25						
11b		0.26	0.18	48	50	40	30	77	74	28	33	7.2	6.6	20	18	0.12	1.1						
8b		0.3	0.17	46	50	46	43	160	110	23	29	6.7	7.5	28	24	0.099	0.11						
2b		0.33	0.33	51	55	46	30	93	55	21	25	5.9	4.5	21	14	0.14	0.19						
10a	0.09	0.23	0.14	63	37	33	46	120	110	20	29	4.6	4.8	22	24	0.15	1.4						
4a		0.38	0.26	49	56	43	34	140	69	28	27	6.6	6.9	27	19	0.083	0.52						

- No definitive results

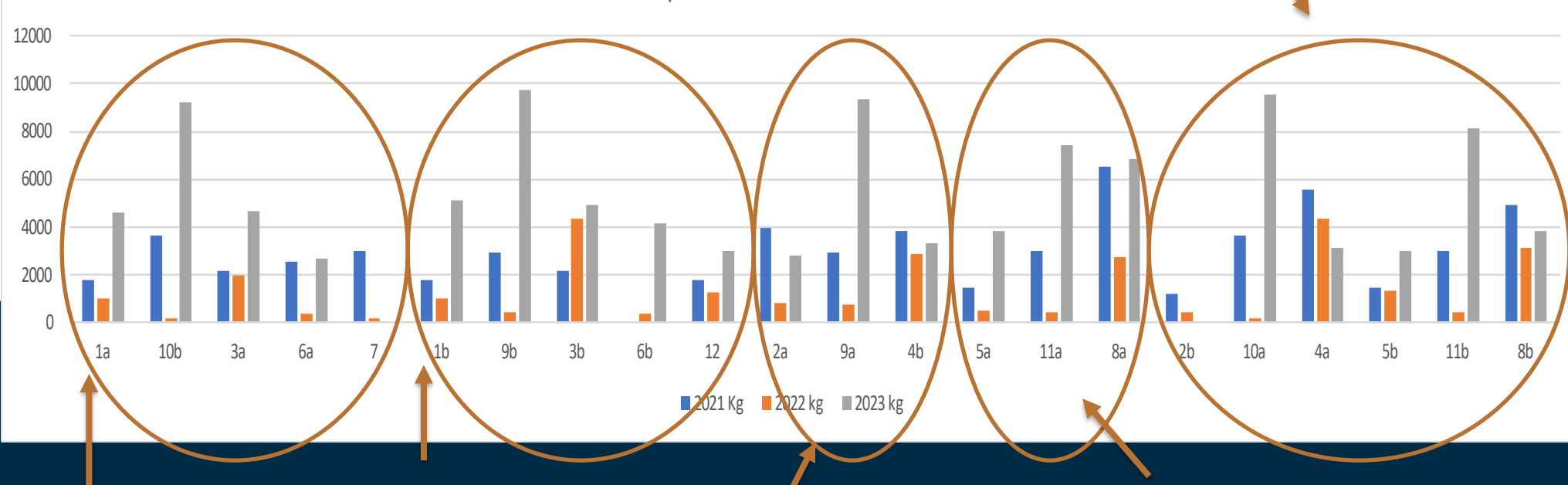


# Production Results

Nangkita Grove

- Control – no additions
- Increases in 10a and 11b due to pruning
- 8b & 4a decreased
- 2b too wet to harvest
- 5 off tiny base

Compost Trial Production Results



- 20m<sup>3</sup> per ha
- All sections increased
- Section 7 – tried for table but diseased
- Section 6 not pruned had smallest increase

- 10m<sup>3</sup> per ha
- All increased
- Section 9 increased most, pruned in 2022
- Section 12 diseased

- 5m<sup>3</sup> per ha
- 2a decreased too wet to harvest in 2023
- Section 9 increased most pruned 2022
- Section 4 decreased pruned 2022

- 5m<sup>3</sup> per ha + bactivate
- All increased
- 8a increased least – hasn't been pruned
- Section 5 not yet pruned but off tiny base

# Production Results

Macro Level



20

m<sup>2</sup> per ha

- 
- Approx 140% growth
  - If disregard kalamata
  - Only section 6b not pruned – 114%

10

m<sup>2</sup> per ha

- 
- 170% growth
  - Also had kalamata with disease affecting results
  - Only section 6b not pruned – 230%

5

m<sup>2</sup> per ha

- 
- 43% growth
  - Issue with section 2 leccino too wet to harvest: negative
  - Section 4b not pruned : negative



# Production Results

Macro Level



5

m<sup>2</sup> per ha +  
BACTIVATE

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- Approx 65% growth
- 2/3 sections not pruned

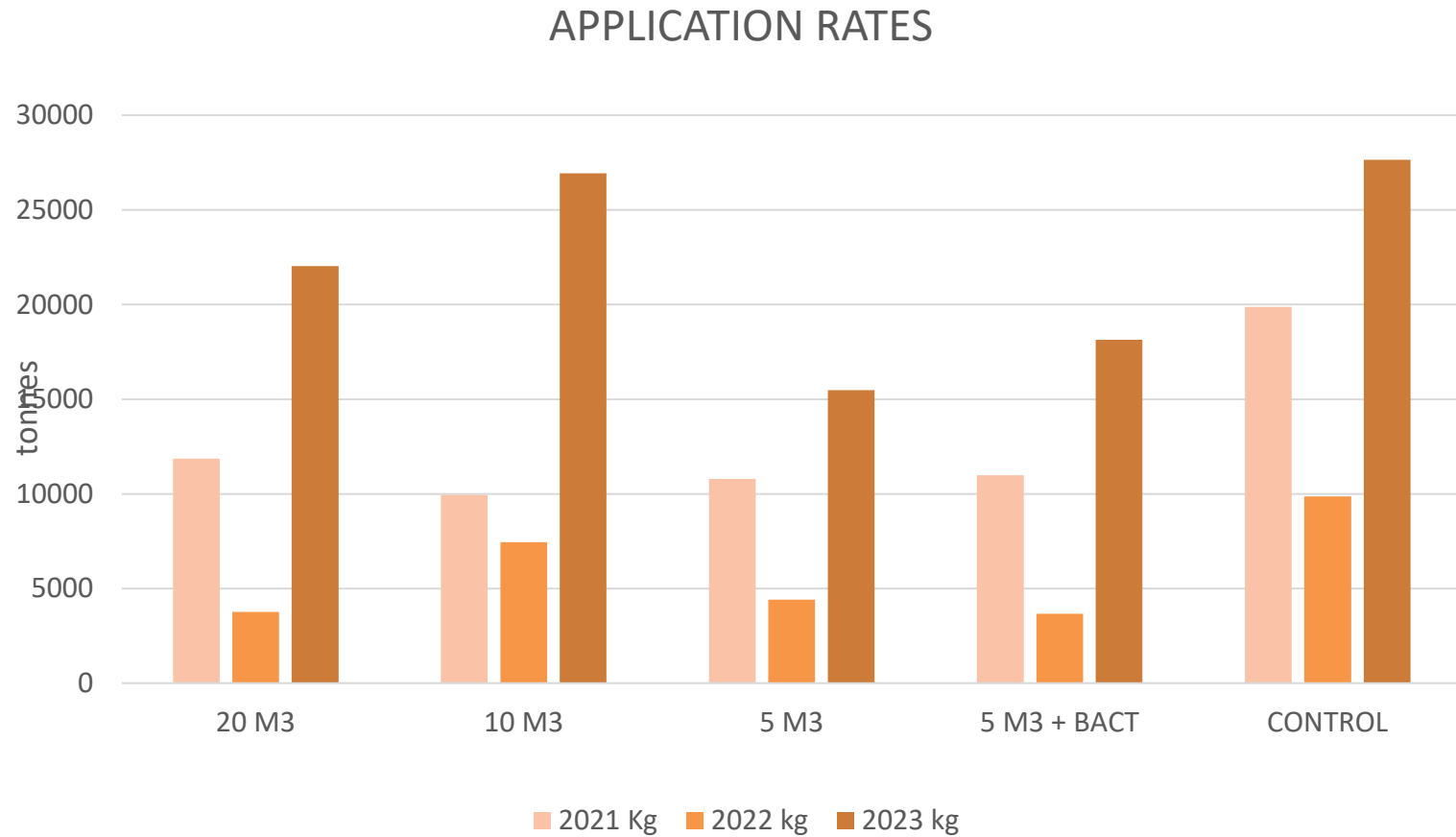
CONTROL

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- 39% growth
- Growth driven by (160%)  
frantoio pruned FY21/22
- S2b not harvested 23  
due to too wet
- 3/6 sections not pruned

- CANNOT SAY  
APPLICATION OF  
COMPOST WAS ONLY  
DRIVER
- PRUNING AND TIME  
SINCE PRUNING HAD A  
DRAMATIC EFFECT
- AND WATERING REGIME
- AND SPRAY REGIME

# Macro results





# Conclusions

## Trial Results

- I am no research scientist! But nature doesn't necessarily work to our plan either!
- Just composting won't fix everything
- Regenerative Pruning and the timing of each block has had a massive influence on our production increases
- Watering regime has had an impact
- Everything needs to be in balance, and we need to work with mother nature, not against her.



# Get Connected With Us

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# THANKS

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