Jeremy Trembath

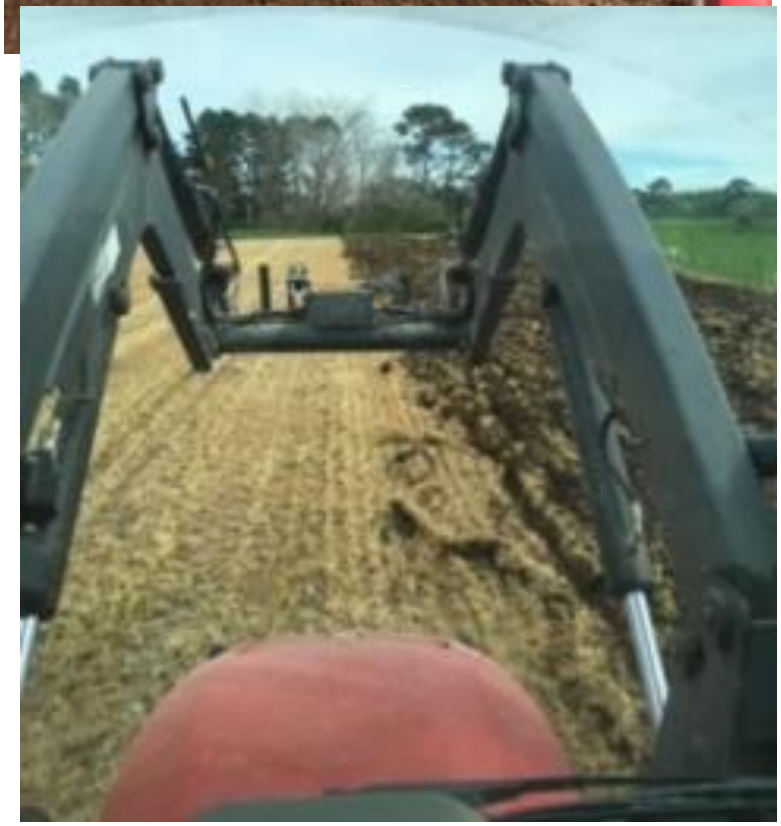
Harding Trembath Stock (HTS)

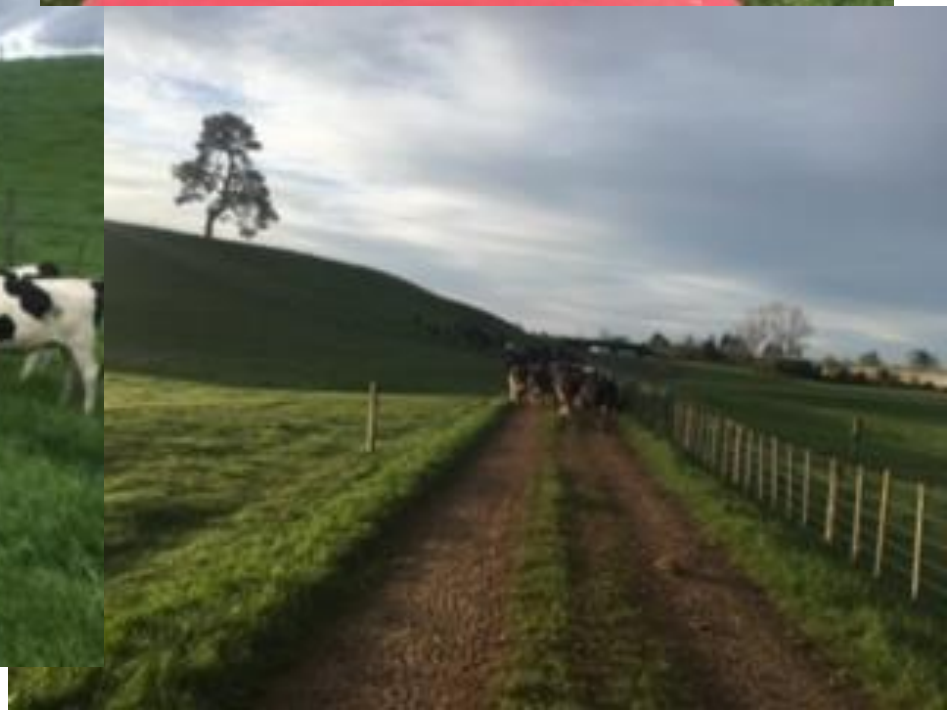
Our soil story

Jeremy and Amy Trembath

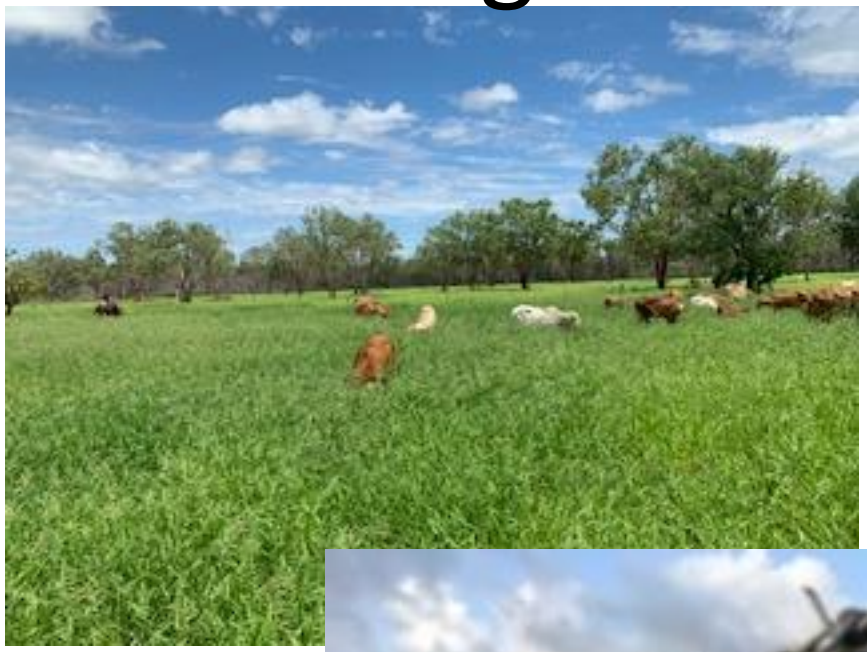
The beginning...

NZ Farming





Returning home



Mentors

- Pat Coleby – ‘Natural Farming’
- Charlie Arnott – ‘Regenerative Journey’
- Graeme Sait – ‘ Nutrition Farming’
- Books and magazine articles
- Mungali Dairy Biodynamics
- Jono Shaw
- Andrew Dalgleish
- Dad

Soil Treatment

- Ploughing
- All about the cows

Evolving relationship with soil

- “If you can’t do it for the next 100 or 1000 years.. Don’t!”

- Weeds
- Chemicals
- Disease and pests

Science behind our soil

- Light-medium red clay loam
- Low organic matter
- pH ok, slightly acidic
- High in manganese and iron
- Potassium ok
- Low in everything else!

AGVITA ANALYTICAL | expressSoil® | E.E. Muir & Sons — AUSTRALIAN OWNED • SINCE 1927

Client Details

Client:	E E MUIR & SONS (KATHERINE)	**Date received:**	07/07/2021
Grower:	TREMAN	**Current Paddock:**	HORSE B (Sampled: 07/07/2021)
Order No.:	24-036509	**Date reported:**	12/07/21
Sample ID:	21017714	**Profile sampled (cm):**	30
Lab code:	ES25	**Client agronomist:**	MATT DENNIS
Crop:	SOIL	**Soil Type:**	Light Soil (CEC <8meq)

N-Check Results

NO3-N:	4.88ppm	**Nitrate:**	49.7 kg/ha	**Total available NO3 + NH4:**	**56.8 kg/ha**
NH4-N:	0.70ppm	**Ammonium:**	7.1 kg/ha	Total req. NO3 + NH4 (kg/ha):	
				Total available NITROGEN =	**16.7 kg/ha**
Bulk Density:	1.26g/cm	**Rootzone Moisture**	27 mm	**% Moisture:**	7.21% W/W

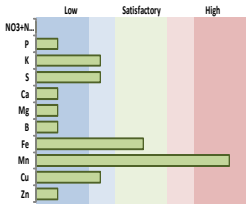
expressSoil Results

Analyte	Units	Result	Optimal Range	Status
pH (H_2O)*	(pH)	**6.00**	6 - 7	Slightly Acidic
pH ($CaCl_2$)*	(pH)	**5.09**	5.4 - 6.5	Acidic
EC*	dS/m	**0.049**	0 - 0.15	Satisfactory
Lime requirement	t/ha			
ESI	units		value >0.05	Very High
Total Carbon*	%	**0.649**		
Total Nitrogen*	%	**0.075**		
Carbon:Nitrogen Ratio	(ratio)	**8.684**		
Organic Matter	%	**1**	3.25 - 5.2	Very Low
M3 PSR	(ratio)	**0.03**	0.06 - 0.23	Very Low
Mehlich Phosphorus*	ppm	**12.5**	40 - 90	Very Low
Potassium*	ppm	**119.1**	195 - 320	Low
Sulphur*	ppm	**8.3**	12 - 45	Low
Calcium*	ppm	**315**	1300 - 2200	Very Low
Magnesium*	ppm	**53.8**	165 - 330	Very Low
Sodium*	ppm	**2.1**	16 - 63	Very Low
Chloride*	ppm	**15.545**	0 - 200	Satisfactory
Zinc*	ppm	**0.45**	1.6 - 8	Very Low
Copper*	ppm	**1.42**	2.5 - 10	Low
Boron*	ppm	**0.34**	1.7 - 4	Very Low
Manganese*	ppm	**201.3**	18 - 70	Very High
Iron*	ppm	**69.0**	30 - 200	Satisfactory
CECe	meq/100g	**3.1**		
Calcium	meq/100g	**1.6 (51.6%CEC)**	6.5 - 11.0	Very Low
Potassium	meq/100g	**0.3 (9.7%CEC)**	0.5 - 0.8	Low
Magnesium	meq/100g	**0.4 (12.9%CEC)**	1.4 - 2.7	Very Low
Sodium	meq/100g	**0.0 (0.0%CEC)**	0.1 - 0.3	Satisfactory
Base Saturation	%	**74.2**	80 - 87	Low
Exchangeable Acidity	meq/100g	**0.8 (25.8%CEC)**	13 - 20 %CEC	High
Aluminium Saturation	%	**0.00**		
Ca:Mg Ratio	(ratio)	**4.00**	3 - 5	Satisfactory
K:Mg Ratio	(ratio)	**0.8**	0.3 - 0.5	Very High

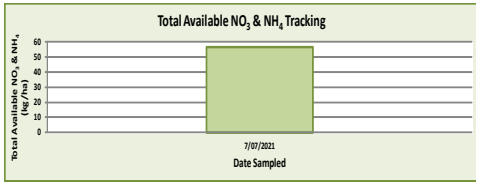
Nutrient Status and Imbalances*

HORSE B (Sampled: 07/07/2021)

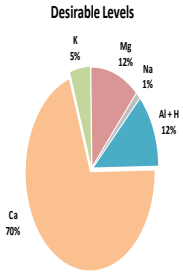
Analyte	Desired Level (kg/ha)	Measured Level (kg/ha)
NO3 + NH4		56.8
Phosphorus	51.6	10.0
Potassium	176.6	94.5
Sulphur	22.62	6.60
Calcium	1389.2	250.3
Magnesium	196.5	42.7
Boron	2.3	0.3
Iron	91.29	54.80
Manganese	34.9	159.8
Copper	5.0	1.1
Zinc	3.8	0.4

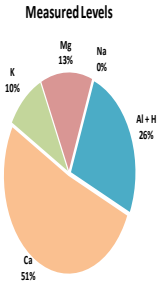


* For further explanation, please see our **expressSoil Users Guide** here



Soil Cation Ratio (as % CECe)





*Values are means of optimal ranges.

Recommendations:

HORSE B (Sampled: 07/07/2021)

RECOMMENDATIONS:

Recommended Soil Ameliorant Applications

Product	Timing	Rate	Application method	Comments

Recommended Fertiliser Applications

Product	Timing	Rate	Application	N	P	K	S	Ca	Mg

Total nutrient application (kg/ha):

ASPAC

This laboratory has been awarded a Certificate of Proficiency for specific soil and plant tissue analyses by the Australasian Soil and Plant Analysis Council (ASPAC). Tests for which proficiency has been demonstrated are highlighted in this report by an * next to the analyte name.

ASPAC

Analysis by AgVita Analytical

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BESTPRACTICE CERTIFICATION ISO9001 QUALITY MEMBERSHIP SYSTEM

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BESTPRACTICE CERTIFICATION ISO9001 QUALITY MEMBERSHIP SYSTEM

Trial and error

- Fertilizers
  - TF Gold
  - Guano S Gold
  - Organica foliar and phosical
  - Biomax
  - Trace
  - Humaboost
  - Molasses

- Cow deodorant
- Composting

New view on soil

- To farm cattle you have to farm grass

The value of soil

It is the start and the finish

Techniques now practiced

- Zero/minimum till
- Using animals pre-planting

- Weed control alternatives
- Drought, Fire, Erosion Strategy

- Fertilizers
- Multi-species forage crops
- Covering bare ground

Grazing pressure on native pasture

Has it helped?

- Less diesel and time
- Native pasture returns
- Ignorant about what the soil was trying to say

The evidence

- Zero till works
- Legumes with sorghum
- Destocked paddocks
- Ploughing and the wet season

Children in agriculture

- Connecting Australians with the land and soil
- Encouraging the most intelligent children into agriculture

Final food for thought

- Is this the way?

For us, YES.

A holistic approach extends off the farm

Every bit counts