

Agronomy Society Symposium 2022

A consultant's perspective on regen

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Who we are

We are independent soil consultants est. 2018.

Our focus is to put back the benefits into the farmers hand, both in fertility and economics.

Key areas of focus include;

- Organic Matter
- Minerals
- Microbes
- Management

We service 10,000ha of dairy in Canterbury

We are passionate about Dairy



What we stand for

- Our heart is to create balanced nutrition in soil, plant & animal.
- 6yrs in the animal sector proved missing links in connecting soil dynamics to animal health – significant consequences.
- “you are what you eat”
- The foundation for all soils comprises of a balance of chemistry, physics and biology.
- We are passionate about walking the journey with all of our farmers!



What does Regen mean?

Others would classify as:

- Keeping soil covered
- Diversity
- Reducing nutrient inputs
- Reducing herbicide + pesticide use

Our language for this:

- Building nutrient density
- Work within nature's principles
- "it is more about the trajectory than a destination that can be obtained"



Nutrient Density

It is commonly understood that nutrition in food is declining (15-50% since mid 1900's).

- 38% lower in 43 table vegetables in 2004 than 1950 - *BBC & Corteva USA 2004*
- 50% lower in 2012 from 1980s in tomatoes - *Dr Arden Anderson, 2012*
- Lower calcium, iron, magnesium, many trace elements and phytonutrients
- This leads to decline in shelf life, taste and aroma

Largely because our farmers get paid on yield not nutrient density.

Yield too has increased in this time but so have external pressures



Nutrient Density II

Industry focus is placed on macro-nutrients but little attention is given to micro-nutrients or the biology bridge at play

Organic matter has huge roles in water storage, anion availability & microbe function/energy

Nutrient density may not be incentivized by the consumer at present, but it is coming.

In the meantime what potential opportunity to the farmer is there?

- Keep green solar panels (key)
- Less disease pressure
- Implies less spray costs
- If less pressure on plant, then greater energy to yield potential



Regenerative context

More factors to yield than just N-P-K-S

- Setup, seed bed preparation, timing & temp
- Soil structure: no air = no go
- Co-factor mineral relationships

Minerals + Microbes + Organic Matter

- Mixed species pre cereals
- Use plants to set the structure up



Regenerative context II

Fyfe Downs, Scott Anderson
400ha, Rotherham N.C

- 2019 Barley W. Crop yielded at 13.5t/ha DM. Historic average was 11.5t/ha.
- 2t/ha yield increase, significant reduction in both nutrient & fungicide input costs = higher margin

What was different:

- Inclusion of Ca, macros, micros & trichoderma. Units applied 66N, 34P, 40K, 19S. Time without a plant in the ground was minimal. Zero fungicide used
- We believe significant response to Trichoderma (<\$20/ha) + not applying excess N

*This result was repeated in 2020 & 2021, this season a legume understory is on the cards



Positive observations so far!

- OM increases of 1% are achievable p.a (massive impacts on WHC, Anion storage + Microbe food)
- Lower nutrient inputs required to sustain production (particularly N)
- Increased rooting zones & soil structure
- Using set up crops (primers) and significance in the potential here
- Using cover crops to rehabilitate soil function for cash crops

On right 2018: land ex CPW canal works, went from beautiful soil to nil. Remediation work (3yrs) consisted of >20t p.a compost inclusions. After 3yrs we struggled to obtain 6t/ha DM. Gave up and tried primer mix – we grew top 75mm of top soil in 4 months.



Conclusion

- NZ has significant opportunities – consumers are demanding food security + tracing.
- There are always areas to improve where we are, find people that are a few steps ahead.
- Ask questions
- Create safe to fail tests, if it holds truth on small scale then continue to test it out on larger scales.
- Treat soil as soil – it's a house for microbes, mineral storehouse, water reservoir and giver of life, much more than a medium we plant into.



Thank you!

References:

<https://www.bbc.com/future/bespoke/follow-the-food/why-modern-food-lost-its-nutrients>/Our focus is to put back the benefits into the farmers hand, both in fertility and economics

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