

Welcome



Lonsdale Sheep Dairy
New Zealand
From Ewe to You

Regen Ag Farm Systems

- **Lonsdale Sheep Dairy, Springston**
- **36ha good silt soils, 300+ milking ewes**
- **Irrigated**
- **First milking season – 2018/19**
- **Heather, Katrina & Rod McMillan**
- **Member of *Sheep Milk Supply Group***



Sheep Milk Supply Group



The workers - Heather, Katrina (& Becky)



Employees of the month East Friesian/ Lacuane



Our future – healthy soils, pastures & animals



The big picture...

- Theme = Functional Farming Systems
- Regen Ag = healthy soils/ pastures/ animals
- A more balanced approach to biological systems
- Visible system results

Repeatable across pastoral farming

So we have adopted this approach

Start with the end in mind...

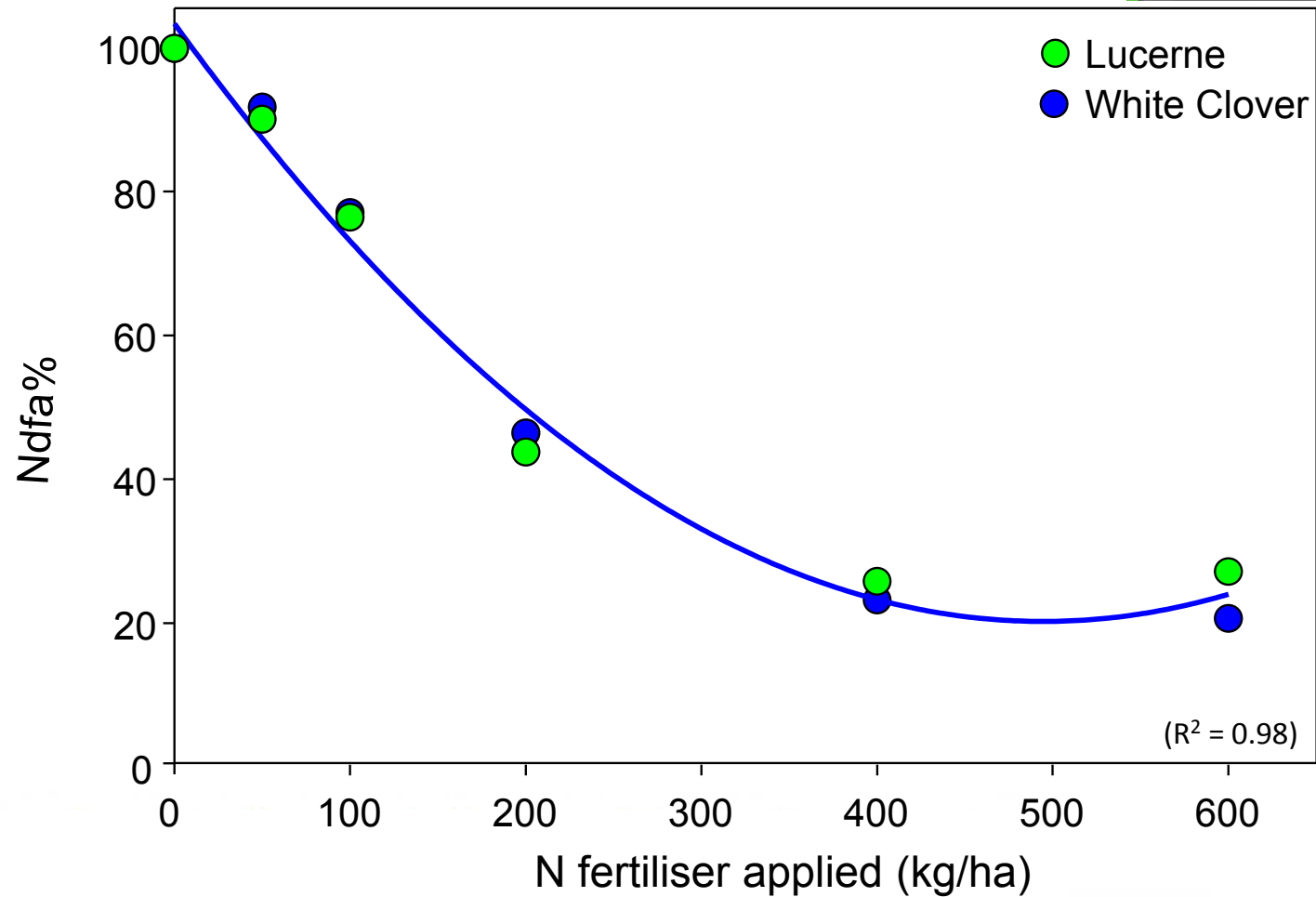


Clover [Legume] as 'kingmaker'

Fix 25-30kg N/ t DM



Contributions from BNF



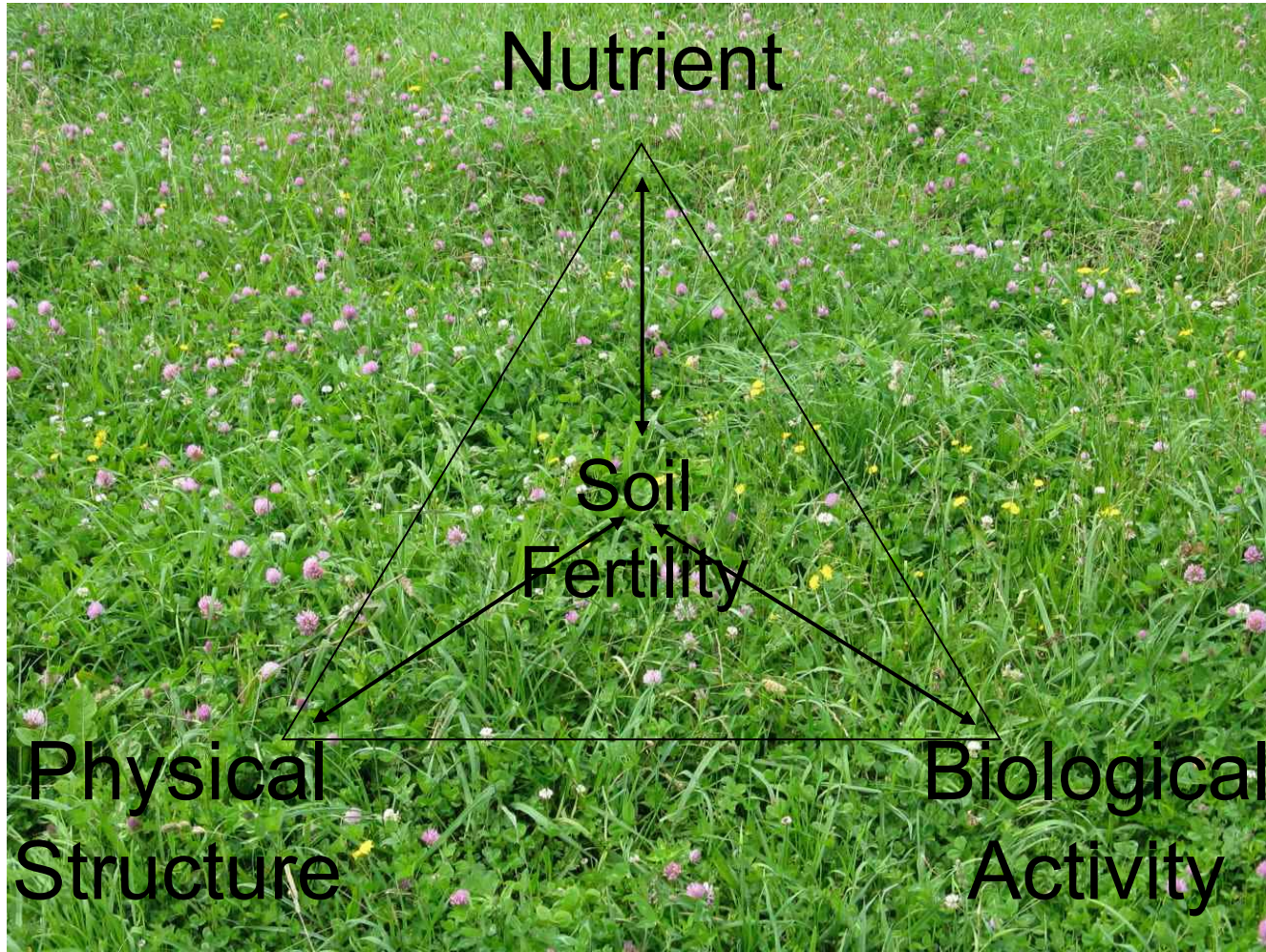
Context – the challenge in front of us:

- Historical comparative advantage - 'clean & green' low cost farming
- **Future Farms** – quality farming systems
- Environmentally robust & profitable, e.g. soil integrity/product traceability, nutrient dense pastures & output
- Regain comparative advantage through innovation

Our Kiwi colleagues remind us...

- Prof. Derrick Moot [Lincoln Uni] – “although *artificial nitrogen* had ‘fed the world’, it’s environmental downside is such that should NZ farming practices continue their present track there would need to be a conversation around the survival of pastoral farming”
- Prof Walker, Prof Langer, Prof White, and Drs. Warwick Scott, and Dick Lucas, et. al. echo the same story... I am a disciple of theirs.

The FF approach we are following



Functional Fertiliser [Peter Burton]:

- Unique system's approach [15-20 Yrs. data]
- Sound biologically ['first do no harm']
- Scientifically robust
- Cause-&-effect transparency & accountability

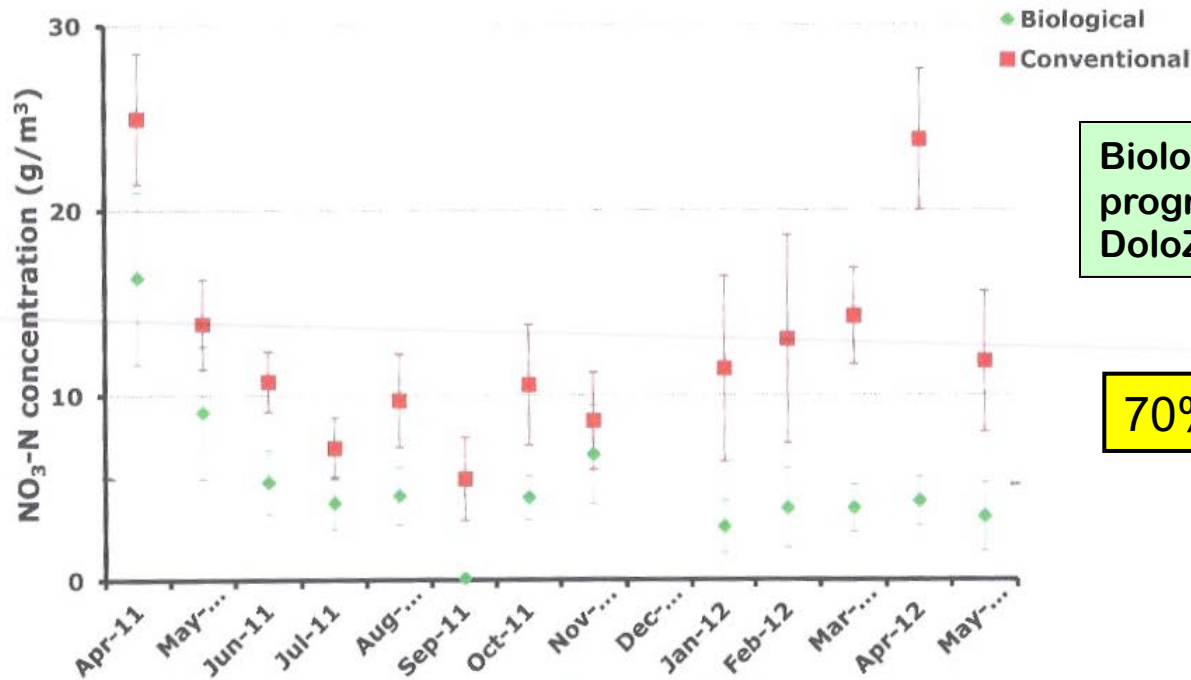
Farmers report significantly enhanced outputs:

- Steady increase in pasture production
- Carbon sequestering
- Significantly enhanced soil drainage & water quality
- Farm within strict environmental standards, etc.

The metrics - flux meter



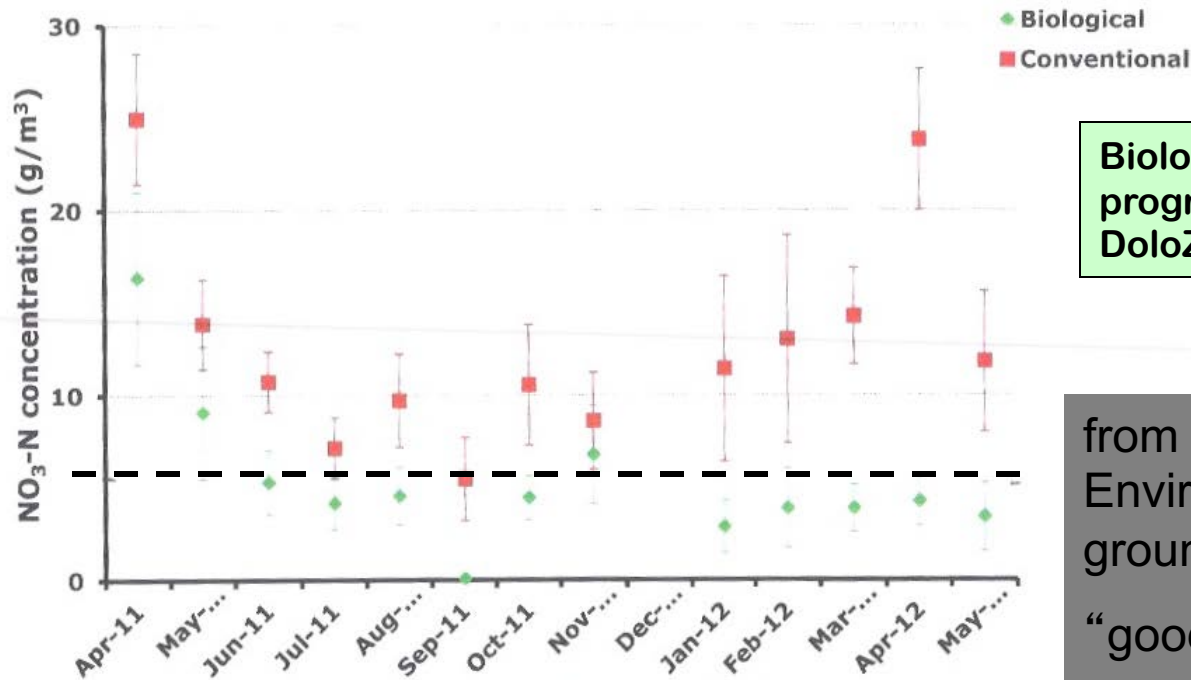
Intensive Dairy Nitrate-N concentrations in soil water Edgecumbe, NZ



Biological = nutrient
programme based on
DoloZest and CalciZest

70% less nitrate-N

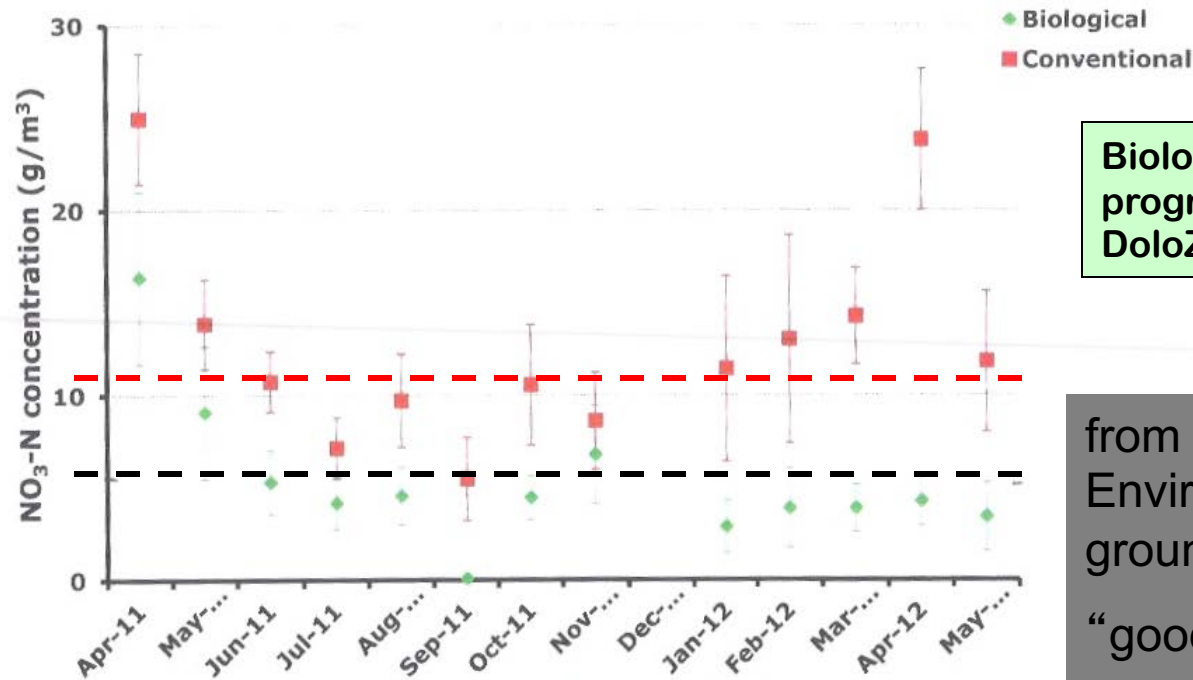
Nitrate-N concentrations in soil water Edgecumbe, NZ



Biological = nutrient programme based on DoloZest and CalciZest

from Ministry for the Environment,
groundwater Nitrate-N
“good” < 5.65

Nitrate-N concentrations in soil water Edgecumbe, NZ



Biological = nutrient programme based on DoloZest and CalciZest

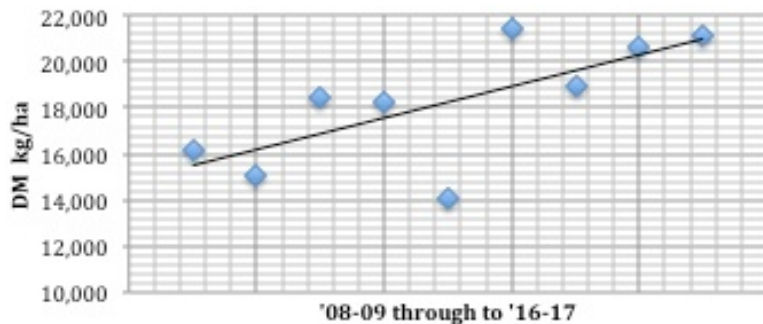
from Ministry for the Environment, groundwater Nitrate-N

“good” < 5.65

“poor” > 11.3

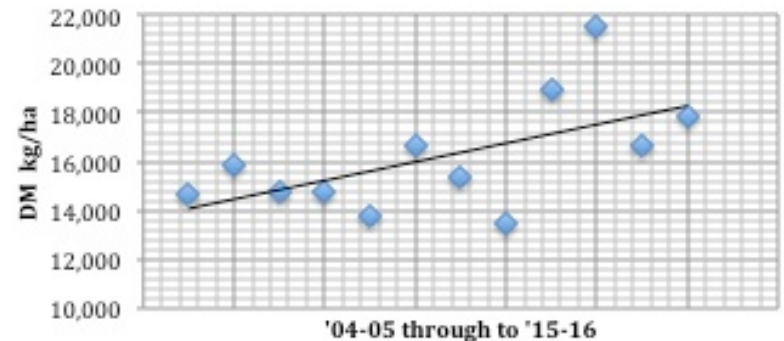
Carbon is being sequestered - based on monthly pasture-cut data:

Annual pasture growth
Berryman farm, Edgecumbe



9 yr. trend line
15.6 to 21 t/ ha
c. 35% lift

Annual pasture growth
Taylor farm (irrigated), Galatea



12 yr. trend line
14.1 to 17.9 t/ha
c. 27% lift

Whole-of-farm systems approach:

- Mitigate seductive risk of 'bag-N'
- DoloZest & CalciZest
- Unique soil improvers using
- Dolomite, Lime; & biocarbons
- +*selected* beneficial soil fungi & bacteria
- Accelerates digestion of organic matter,
- ...and yes, it does work...



FF total-nutrient programmes are:

- Factored on a nutrient replacement model
- Intensive dairy, P, K & S applied in spring & autumn
- Inputs calculated on the well-proven MAF-developed nutrient model
- Active monitoring - soil test at Yr. 1, then @ 3-yrly
- Benchmarked - farm walk-talk-&-measure
- Research-informed
- Accompanied by expert advice along the journey



Our place = CalciZest applied 2019 – starting the journey



CalciZest – Ca + beneficial bacteria & fungi





DoloZest and CalciZest were developed on the understanding that by speeding the decomposition process and the subsequent increase in humus, a lift in both the quantity and quality of pasture could be achieved.



Good practice FMGT: key to optimising outputs across complex biological systems - soils/ pastures/ animals, e.g. grazing/ recovery & the natural growth curve:

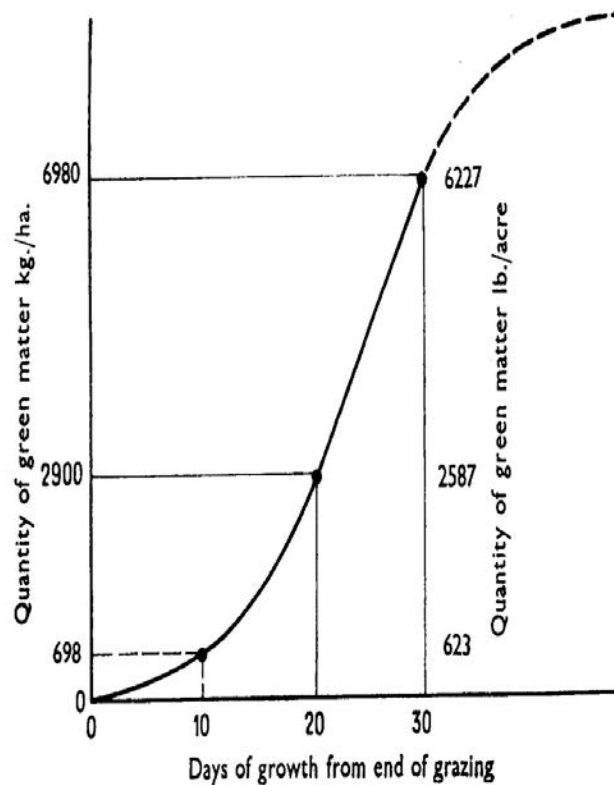


FIG. 5. Growth of grass according to Linehan's experiments.



Good practice FMGT scenario:

- Grazing at the optimal point of the growth curve ensuring more energy in every mouthful
- Enriched nature & quality of sward/ protein
- White clover [legume] as 'kingmaker'
- Lower animal weight loss with higher production
- Deeper plant roots for greater nutrient uptake
- Balanced pasture growth across the season
- Lower incidence of weeds and pests
- Reduced need for pasture renewal



Under a Functional Fertiliser programme:

- Pastures naturally move from lower fertility to higher fertility – the opposite of a ‘conventional’ system
- Soil nutrient costs are essentially the same
- In relative terms - lower SU/ha with a higher per animal performance
- Reduced animal wastage due to improved condition & mating performance
- Lower animal health costs





Adjacent farms/pdks at BOP – FF at right

It's a journey of learning for all of us...



Thank Ewe