Presentation PAANZ workshop
March 2016

"When the tide goes out, make sure you are wearing swimming togs"

Warren Buffet

Presented by:
Andy Macfarlane
Macfarlane Rural Business Ltd

189 Alford Forest Road - PO Box 418 – Ashburton – T: 03 307 8099 - www.mrb.co.nz

In charge of your destiny

or

In a maul

Success = situational awareness

Knowing where you are on the paddock!

Capable of changing the game plan.

Have a range of skills (tools) at your disposal.

Know where the touchline is!

Good judgement on when to spin the ball and when to kick.

Tackle (problems) offensively.

Train hard.

Communicate inside and outside, and with the ref!

Remember the calls !

Failure = not being on the field !

Head buried in maul – don't know where you are

– only small hard gains possible

Don't look up

Don't pass the ball

collapse the scrum!

argue with the ref!

get sent off!

Key messages

1. Don’t panic.
2. Don’t ignore reality.
3. Measure some basics:
   - You need a starting point
   - Trends need at least 3 measurements
   - Get your eye in!
4. Use your intuition to “do the right thing”, even if science is still to catch up!
5. We are on a steep learning curve – continuous improvement is the key.

6. Nitrogen is not the only environmental metric we need to consider. It is purely one component of the life bearing capacity of soil and water.

   Measures that look more holistically (eg MIC) have merit and will be adopted as knowledge grows.

7. Overseer is currently a very blunt tool, but is the best we currently have. Work and learn with it to increase its accuracy over time.
8. CWMS is not a one trick pony !

The desired outcome of the CWMS is:

To enable present and future generations to gain the greatest social, economic, recreational and cultural benefits from our water resources within an environmentally sustainable framework.

Targets have been developed for:

1. Ecosystem health/biodiversity
2. Natural character of braided rivers
3. Kaitiakitanga
4. Drinking water
5. Recreational and amenity opportunities
6. Water use efficiency
7. Irrigated land area
8. Energy security and efficiency
9. Regional and national economics
10. Environmental limits

Plan changes in Canterbury

- a high level short form perspective!

1. GMP is a given – everyone will have to get there now (2017).
2. GMP standards will evolve (moving the goal post).
3. GMP ("good") will not be good enough to meet standards required in most areas.

4. Farm Environment Plans (and associated reporting) will have to be integrated with your farm and business management plan.
5. High environmental standards apply to dryland as well as irrigated land.

6. Low emitters have some flexibility to increase N losses.
7. High emitters will have to reduce losses or reduce impact of losses beyond GMP standards in most areas.

8. In terms of N reduced impact means N concentrations in waterways at or below 7mg/l.
9. MAR (targeted dilution) and direct augmentation has a key role to play in finding solutions.
10. Targeted application of surface water to take pressure off shallow to medium well takes is critical.

Remembering first principles !

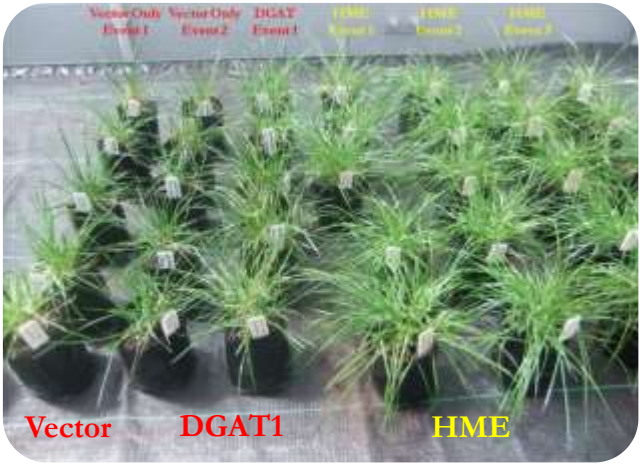
1. Measure before you apply ! (use deep N tests).
2. Use N (and water) interceptors !

   = “soaker uppers” after “creators” or “ depositors”

   = root depth and mass

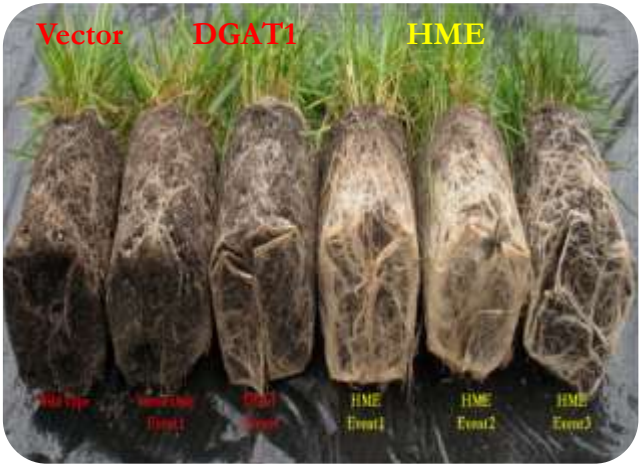
HME is a Plant Yield and Energy Trait

Potential benefit to NZ if adopted $2B-$4B p.a.



Yield and Energy

- Yield increase in glasshouse 50%
- Measured 10% more energy
- Increased root biomass



Environmental Benefits

- Better balanced energy sources (fat to protein) for animal means lower N losses
- Potential reduced Methane emissions (15%)
- Potential for reduced N excretion and reduced Nitrous Oxide (20%)

3. Smaller and more often is better than lots less often.
    - applies to water application
    - applies to urine application
4. Do not put nutrients where you do not need it !! (targeted application technology).

An opportunity in precision spreading

	pH	P	K
Inside drip line	5.7	60	13
Inside shade line	6.2	44	11
In between	6.3	27	6

5. Either apply less urine, or have less N in the urine.
6. The greater the N utilisation in the gut, the greater the productivity, and lower the waste.
7. Less water drained – less N leached.

8. If we drain less, but concentrations are higher, we have to find other ways to re-inject water into groundwater systems (piping might need storage and/or MAR).
9. Integrated systems, and integrated thinking is a key here !
10. We would benefit from validating and demonstrating the good science “at scale”, prior to commercial uptake.

There is no clear path forward showing how Canterbury farmers should respond to the challenges in front of us.

Improvements are required in our environmental management.

Precision Agriculture promises significant productivity gains.

There is huge potential to increase Canterbury's economic output.

Research, science and technology are aiming to address these issues. BUT, we need to pull these together in one place, showing how they can work together on our farms in Canterbury.

We plan to repurpose the Winchmore Research Station to create the Canterbury Future Farming Centre.

The best way to predict the future is to create it !

Abraham Lincoln