

# Precision Agriculture and its Benefits

- Craigie Mackenzie -

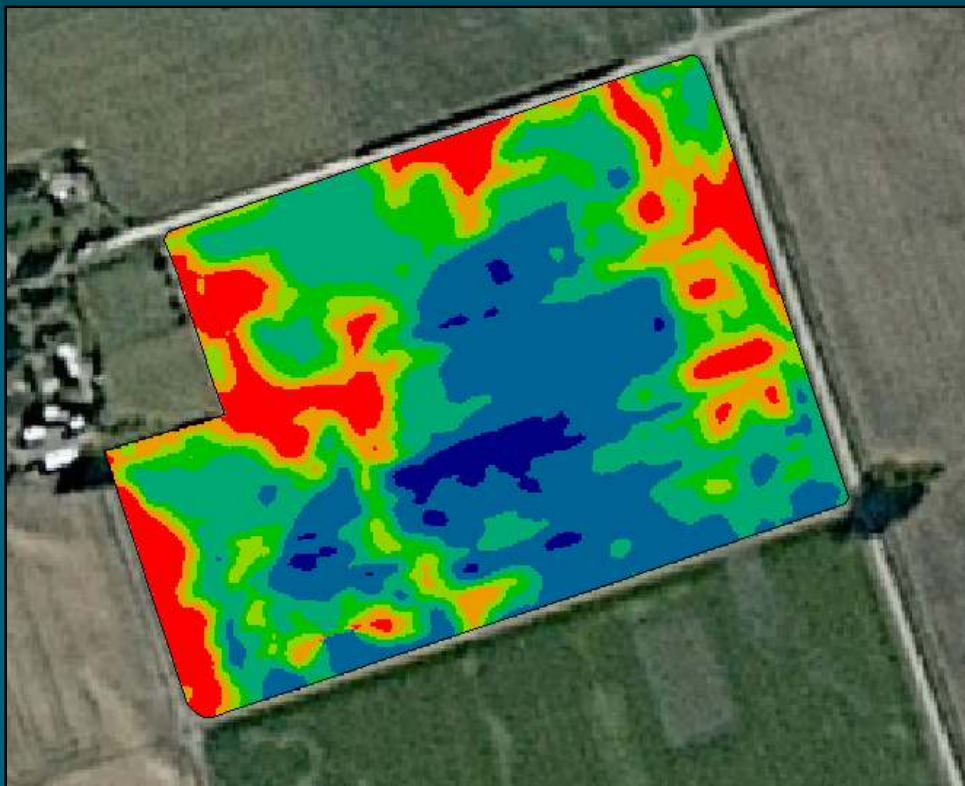
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# Getting the Basics Right



# Profit Mapping

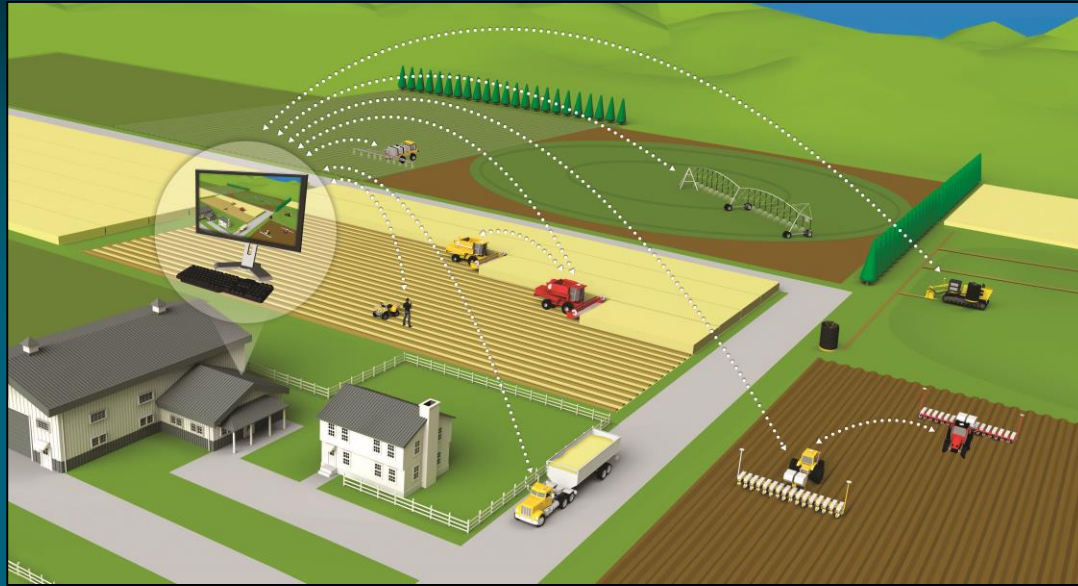


## Net Profit (\$/ha)



Its hard to be Green when you're in the Red

# Getting Connected

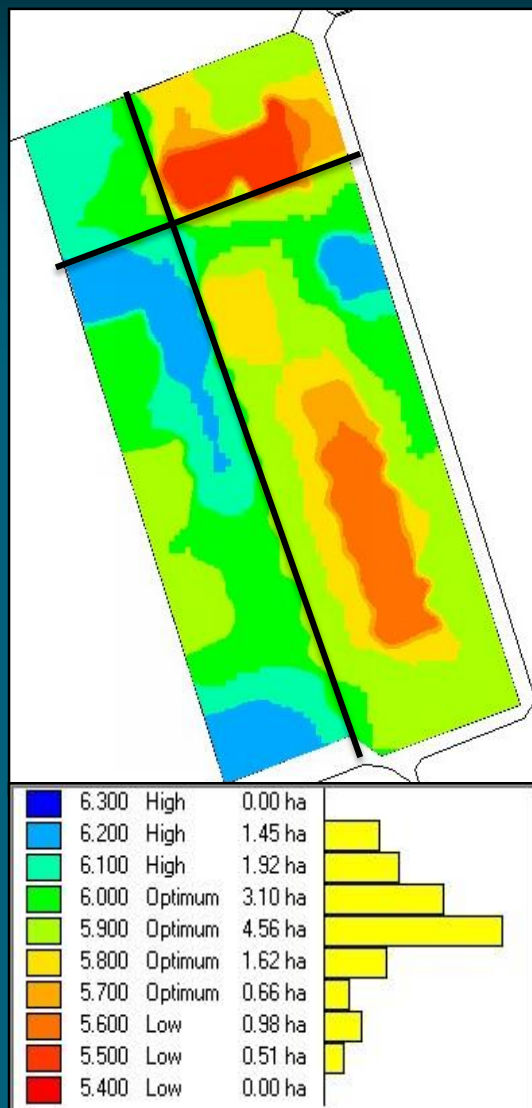


## We're a Connected Farm

- 3G connection - farm office and machinery
- Wi-Fi connection - farm office and irrigators, soil moisture probes
- 3G connection - Irrigators, software server and cell-phones
- 3G connection - wells and irrigation auditor
- GPS on all irrigators, combine and tractors - all with auto-steer

**Rural Connectivity is a huge issue for NZ development**

# Soil Testing : Combining Paddocks

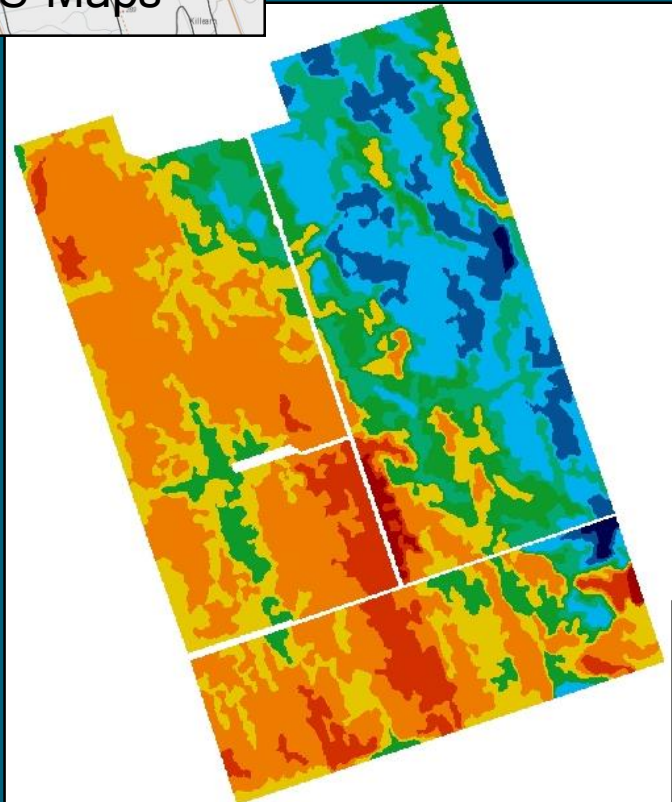


- Lime
- Phosphorus
- Nitrogen

## VARIABLE RATE APPLICATION:

- Application from traditional testing 75 tonnes
- Total application reduced to 10 tonnes
- Saving total \$2,925. \$ 195/ha

# Electromagnetic (EM) Mapping



- Different pattern to S-Map
- GIS site specific detail
- Accurate to individual farm
- Makes targeted management easier
- Useful going forward for informing Overseer inputs



# Irrigation Management



- We've come a long way with technology, hardware and science  
We use variable rate irrigation (VRI)
- Get an accurate understanding of the spatial variability of soils.  
We use data from EM Survey
- Understand the water holding capacity of each soil type to be irrigated
- Situate soil moisture probes by zone and water holding capacity



# What does the Future look like?

- Finger printing of our specialty products.
- Adding value to our products.
- Feeding an increasing wealthy market not just greater population.
- Paddock to plate tracking of products.
- Reduced inputs with greater value of output.
- Retaining the right to farm.
- Making our Farmers more profitable.
- Increased levels of sustainability both environmental and financial
- Focus on water quality as a showcase for the world.



# Robotics in Horticulture



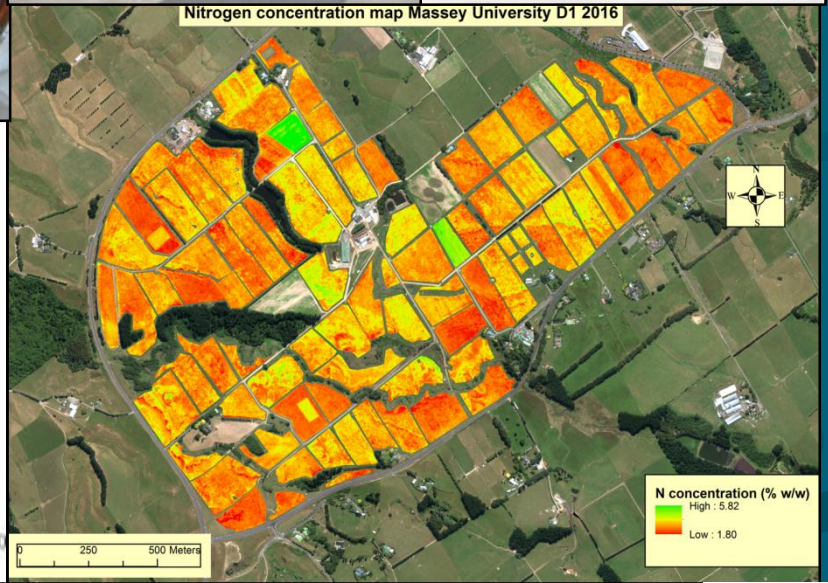
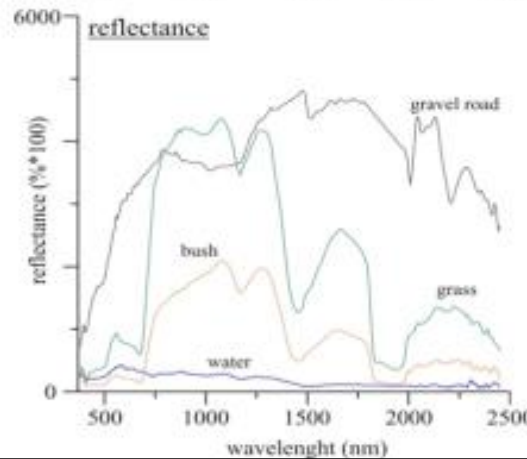
# Agbot Robot



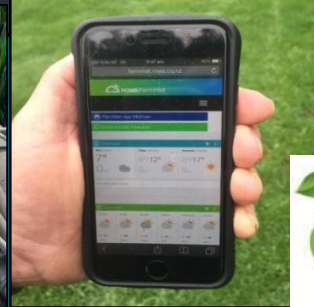
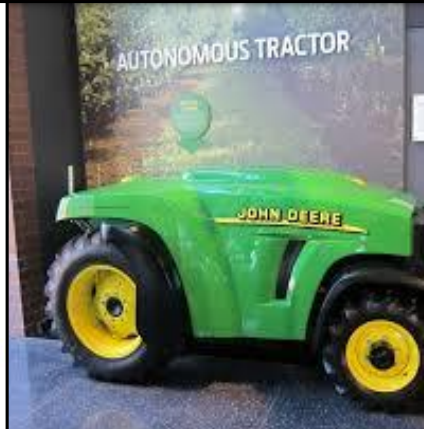
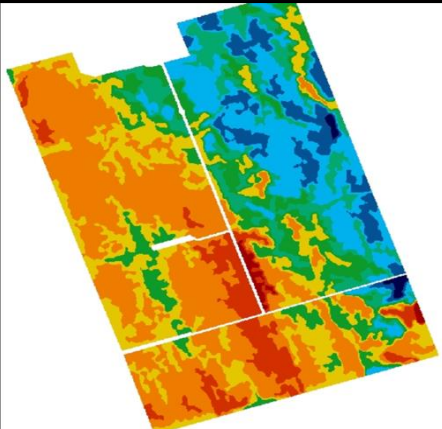
# Virtual Fencing in Action



# Hyperspectral Imaging: Fenix Airborne Sensor



# Exciting times for Agriculture - What tools to choose?



# Climate Change

## - how to reduce our footprint

- Measure/ Model/ Mitigate
- Reduce Emissions intensity
- Use irrigation wisely
- Good sustainable farming practices and the most profitable farming practices go hand in hand.



# The Future.....

"The best way to predict your future is to create it."

Abraham Lincoln