# The use of Digital Technologies on Branson Farms.


## Mark Branson

**(B.AppSc (Agric), 2005 Nuffield Scholar,)**

# The Branson's Family Farm

**Area: 1200ha**

**Stockport**

**Rainfall: 425mm to 525mm**

**Dryland Farming System**

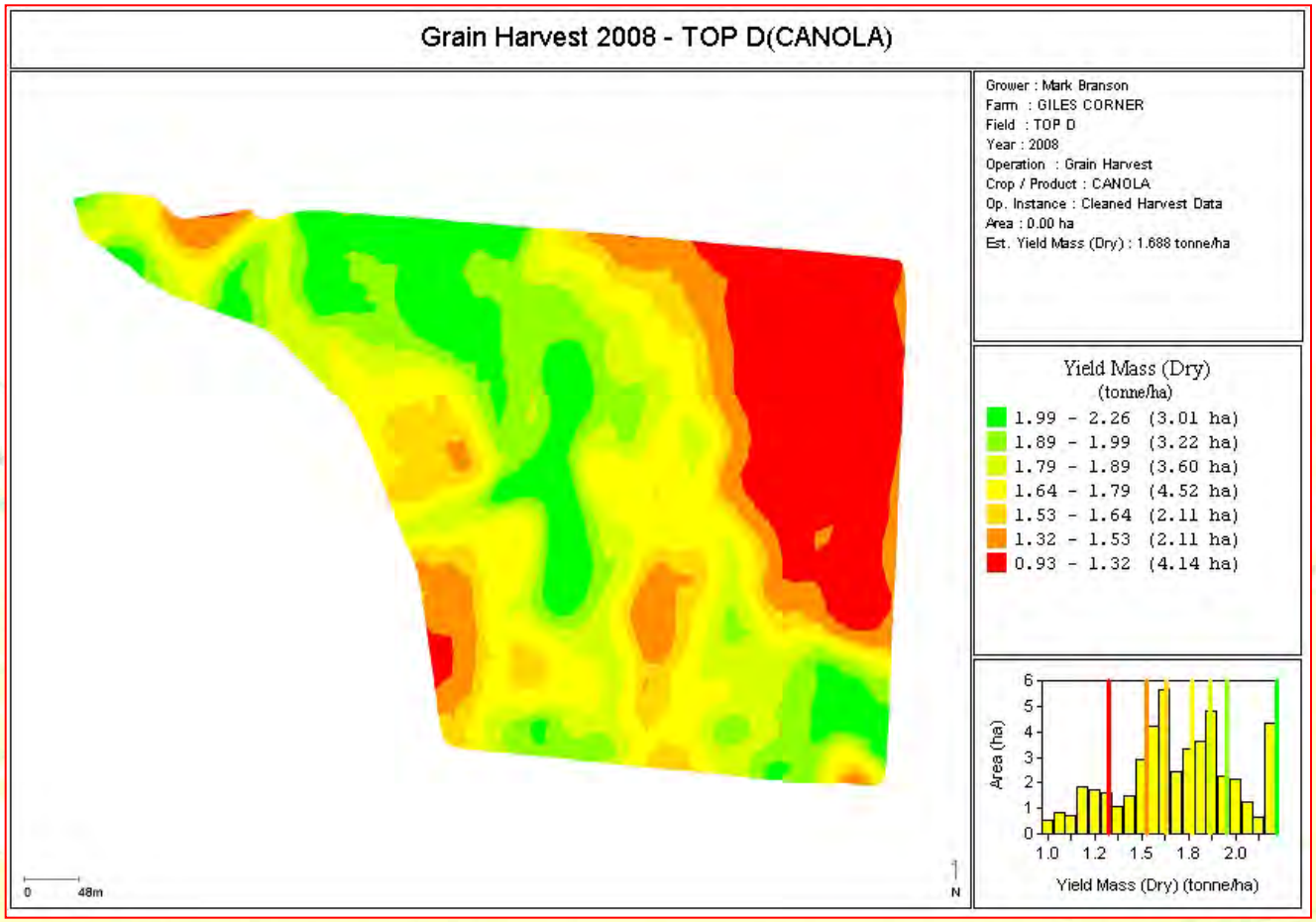
**80% Winter Cropping, 20% Merino sheep**


Digital Technology????

# My Farming System in 2016

- **No Till** - Enforced 2002, on-off 1985
- **PA** - Yield Mapping 1997, Full VR 2006
- **RTK Autosteer** - Own Basestation 2004
- **CT** - Full CT 2004
- **Drone** - Phantom 4 2016

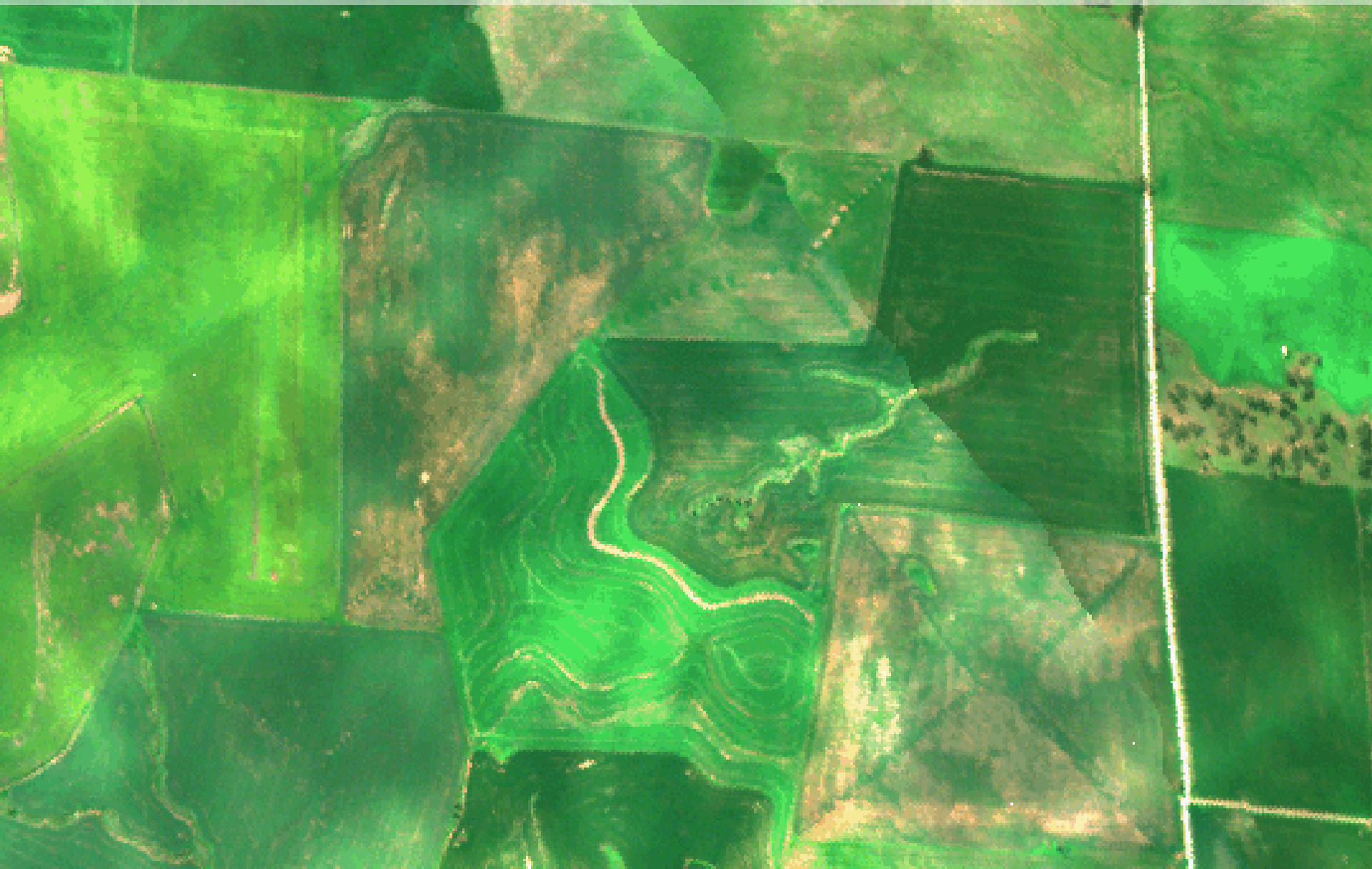
# Precision Agriculture




**Mainly VR Nutrients, Seed, and Weed Management.**

# Yield Monitor

# Variable Rate Nutrients

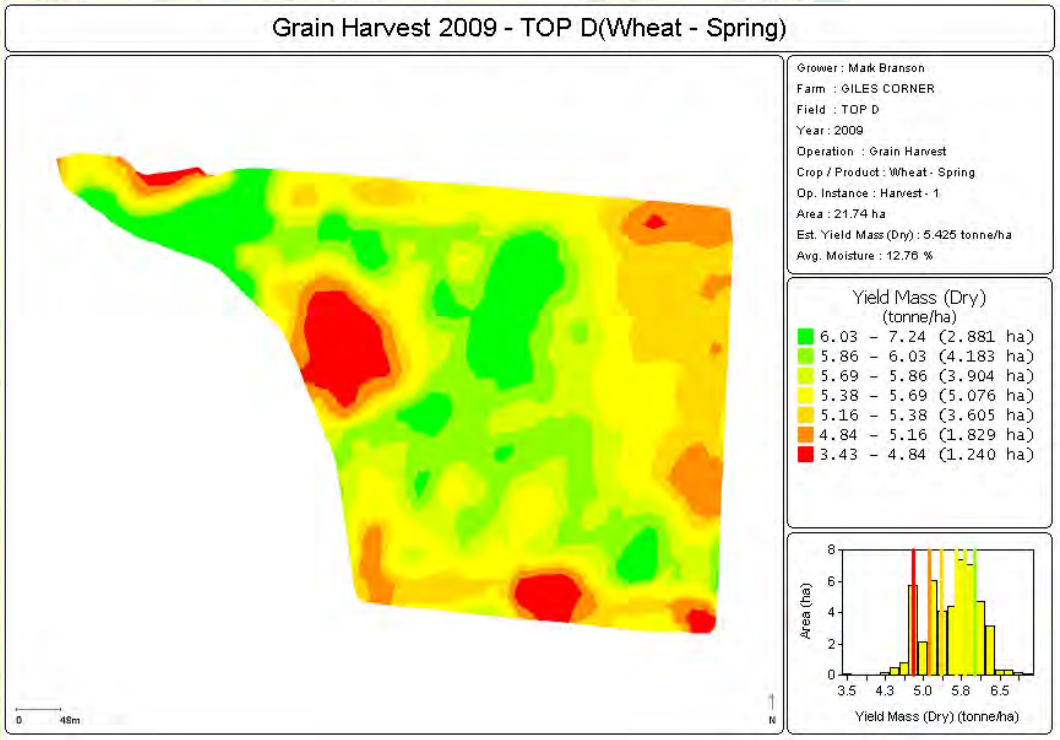


# Nutrient Budgeting

# Phosphorus

# Nutrient Budgeting

**Phosphorus – if adequate, place in the soil at replacement rates derived from the previous years yield maps.**

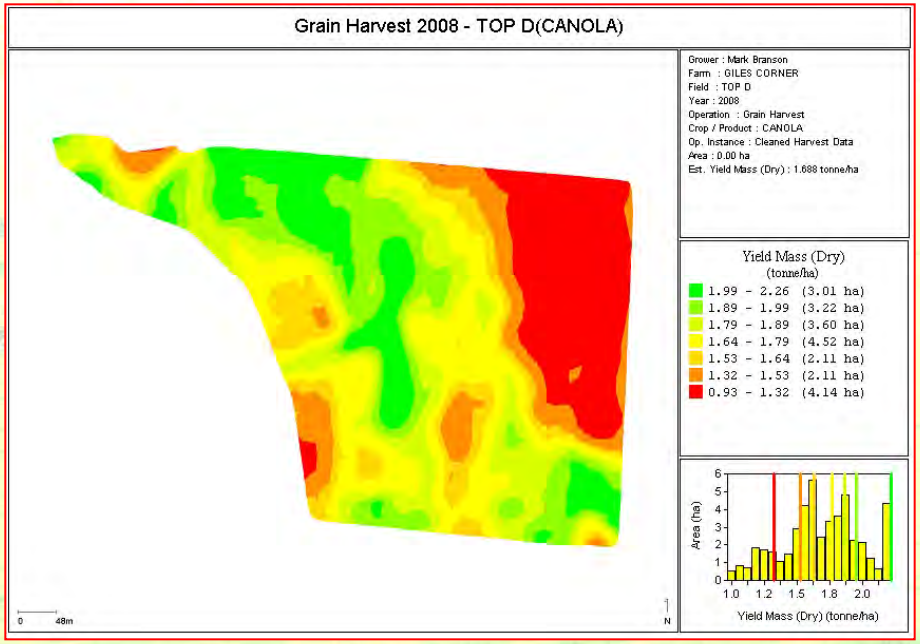


# Nutrient Budgeting

# Nitrogen

# Nutrient Budgeting

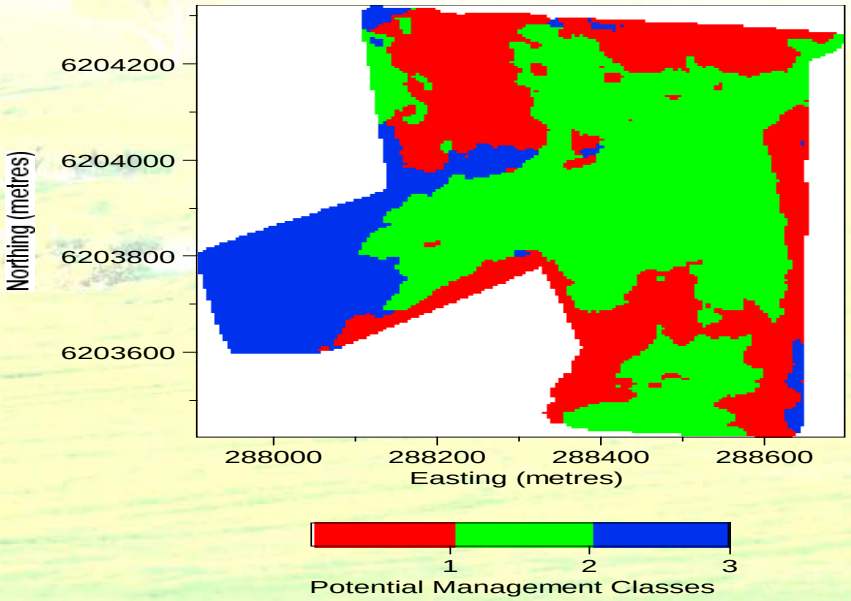
**Nitrogen – Use management zones to determine yield expectations within the paddock, and in season sensors to variable rate according to how the canopy is looking at the time of application.**



# Nutrient Budgeting

**Management Zones – Areas of difference within a paddock.**

**Made from Yield maps, EM conductivity maps, Elevation maps, etc.**




**MANAGEMENT CLASSES**

# Nutrient Budgeting

**Nitrogen Budgeting – Major problem in working out how much is coming from the soil through mineralization.**

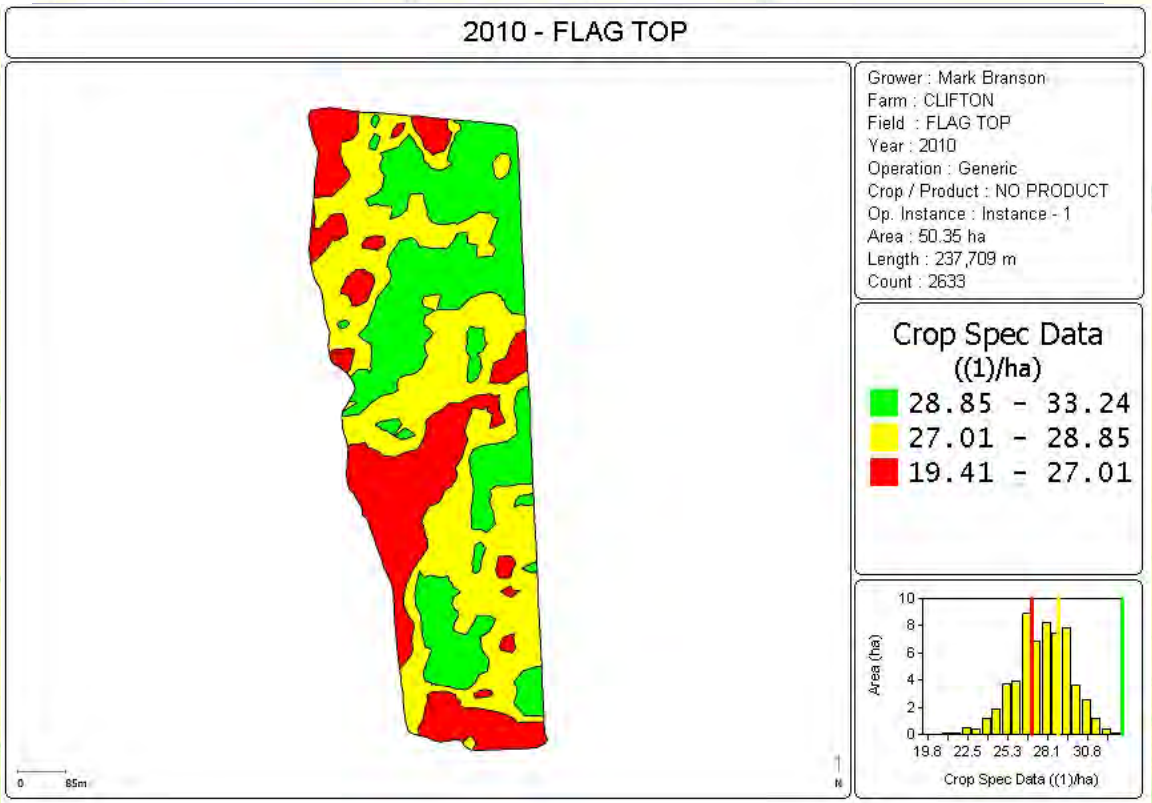
# Nitrogen Sensors


**Let the plants tell you**
N Rich Strip
**if they need Nitrogen**

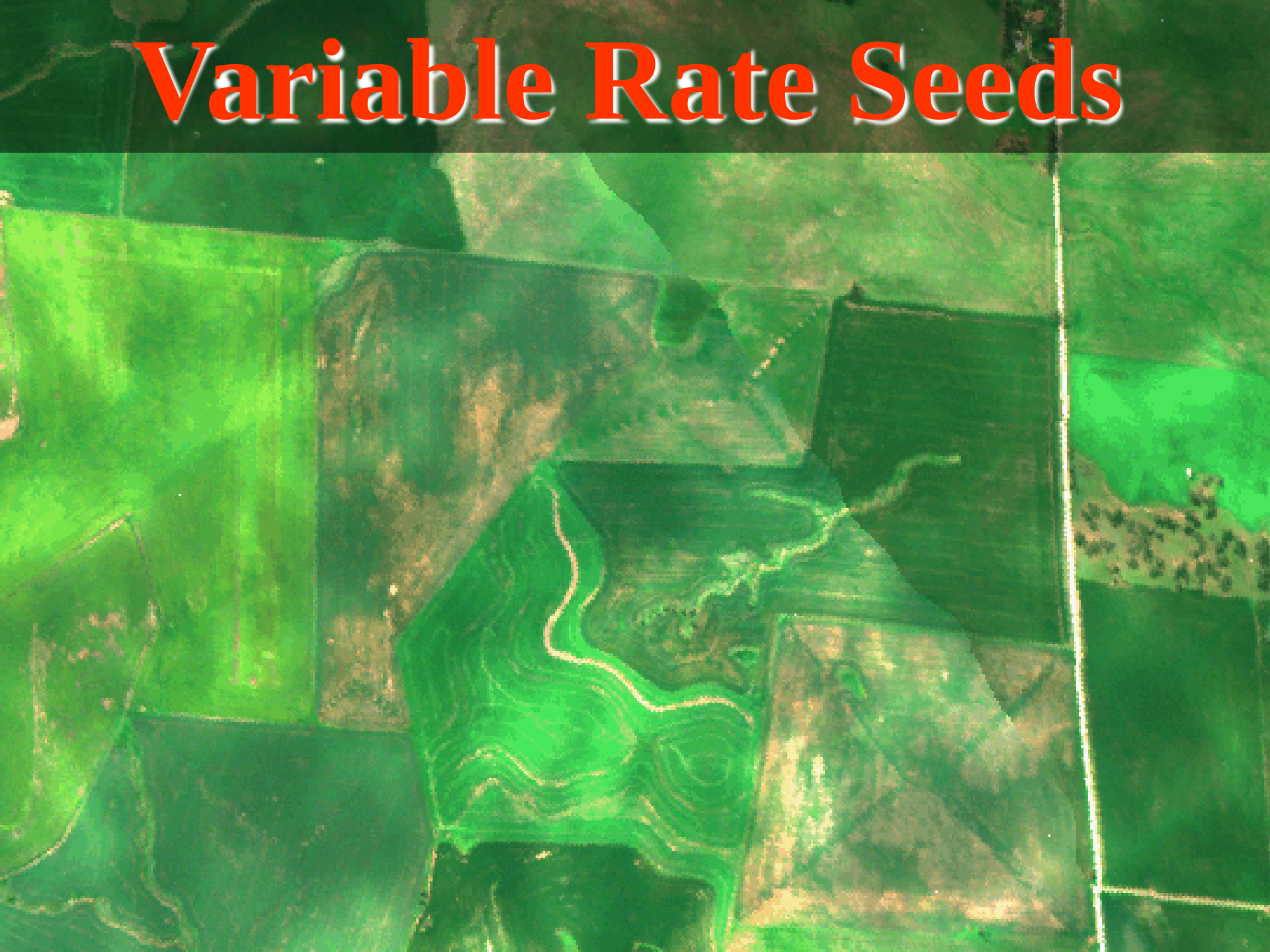
# Nitrogen Sensors

## On the Go Biomass Sensors

TopCon Crop Spec



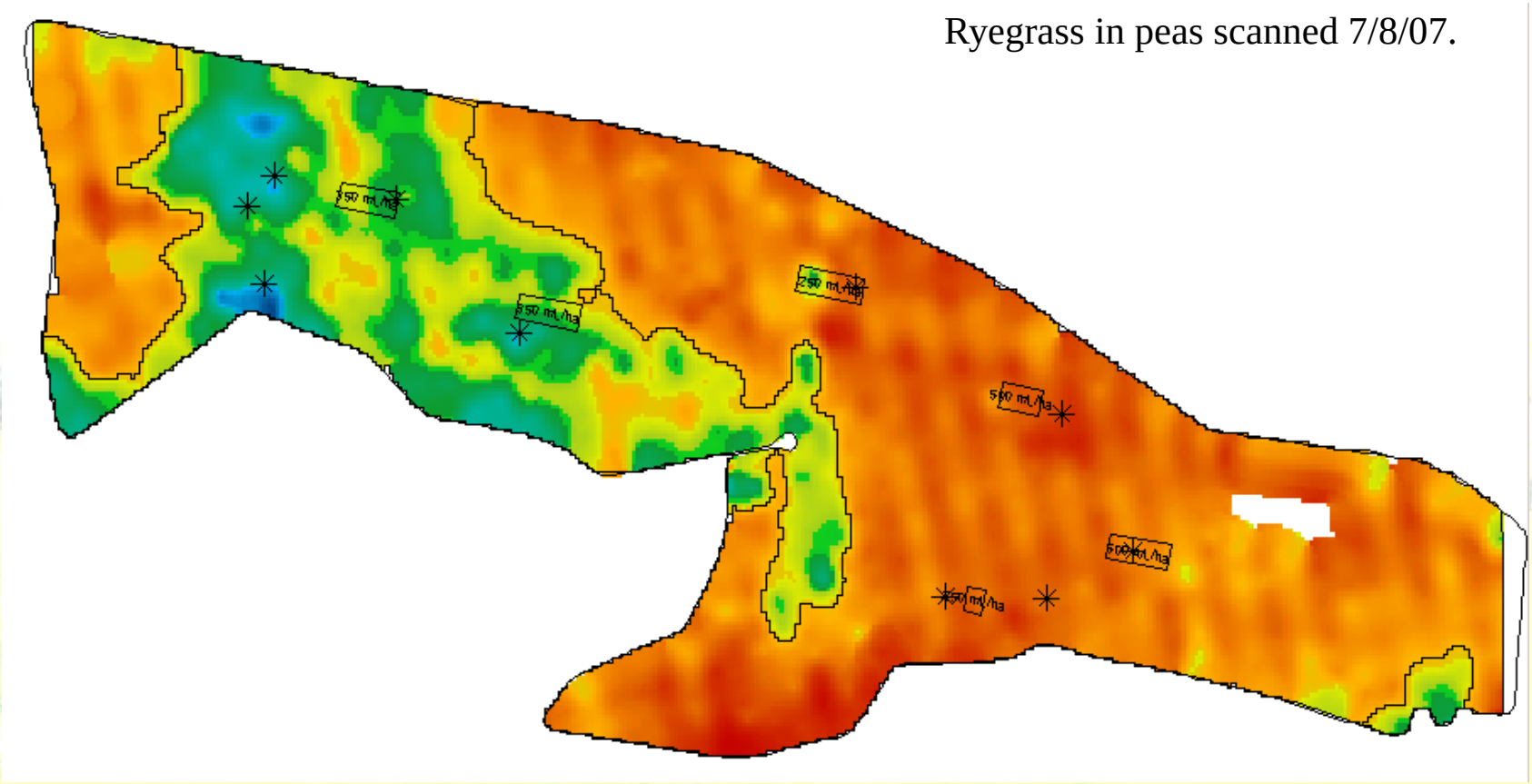
# Variable Rate Seeds

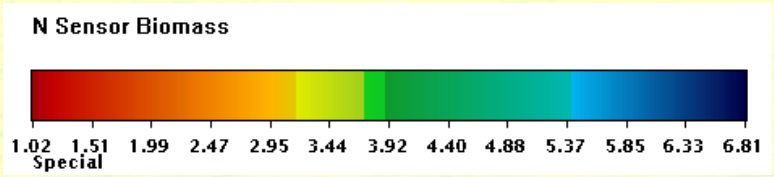


# Variable Rate Weed Management

# VRT Herbicide

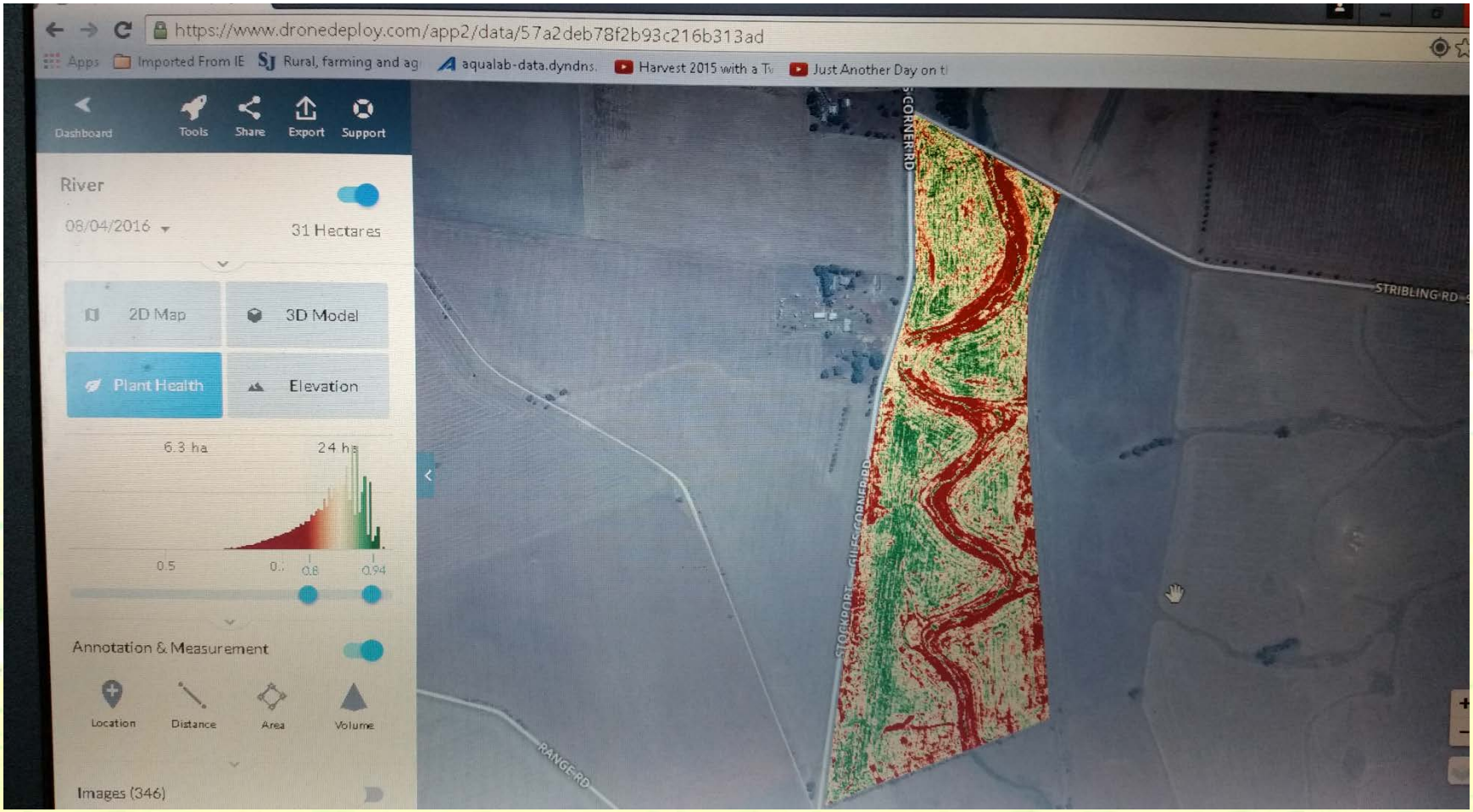
Ryegrass in peas scanned 7/8/07.



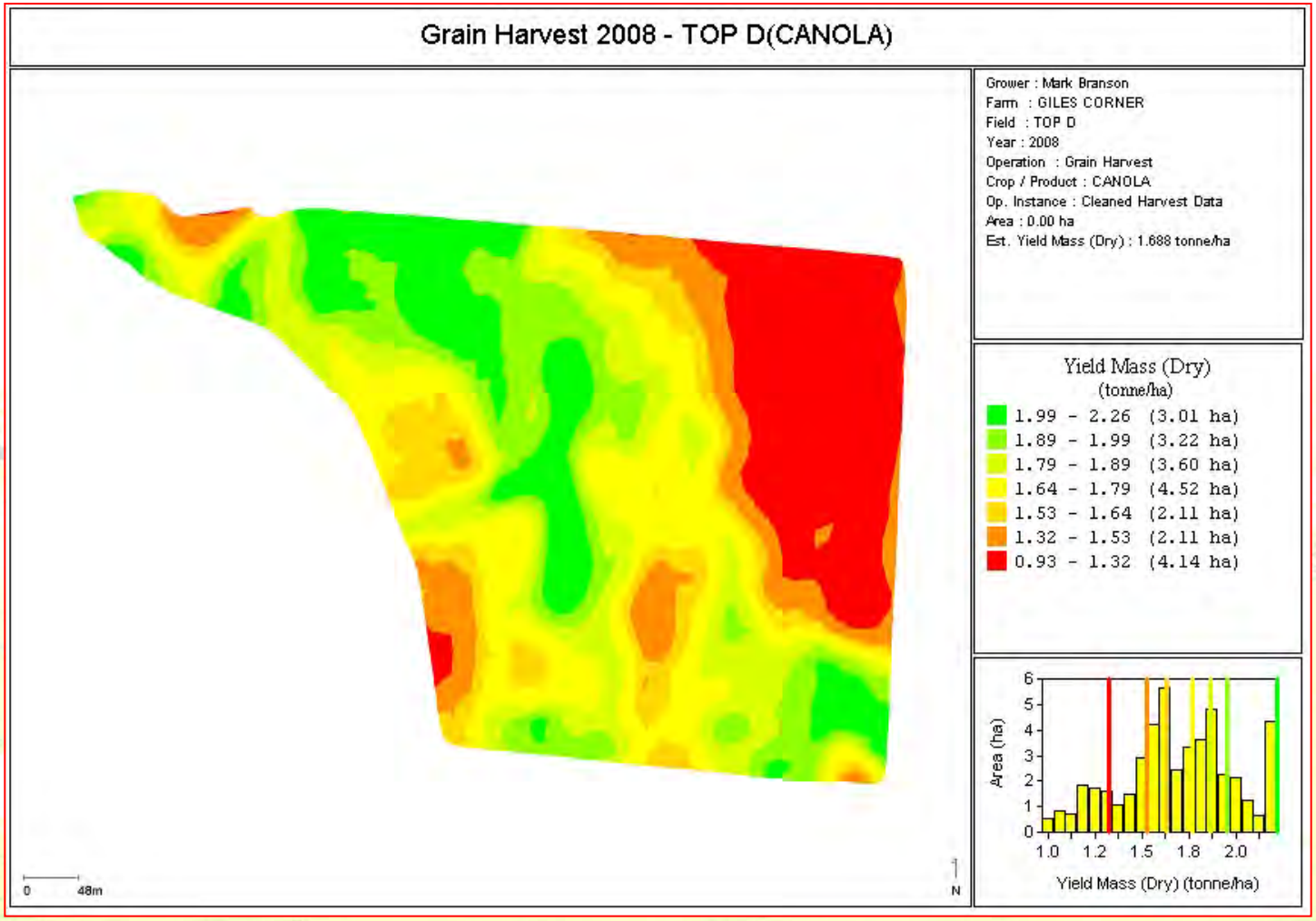


# DJI Phantom 4

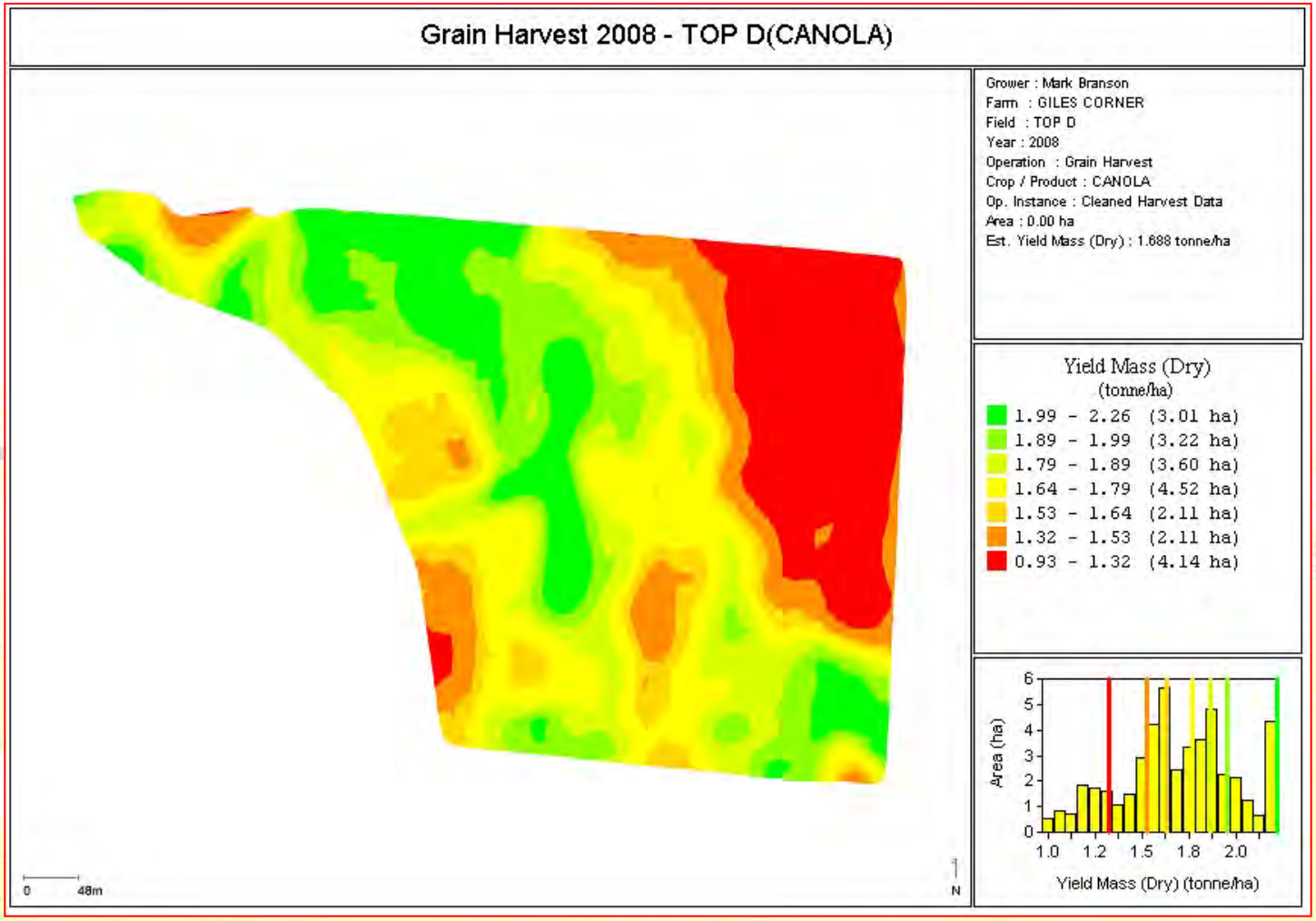
# DroneDeploy



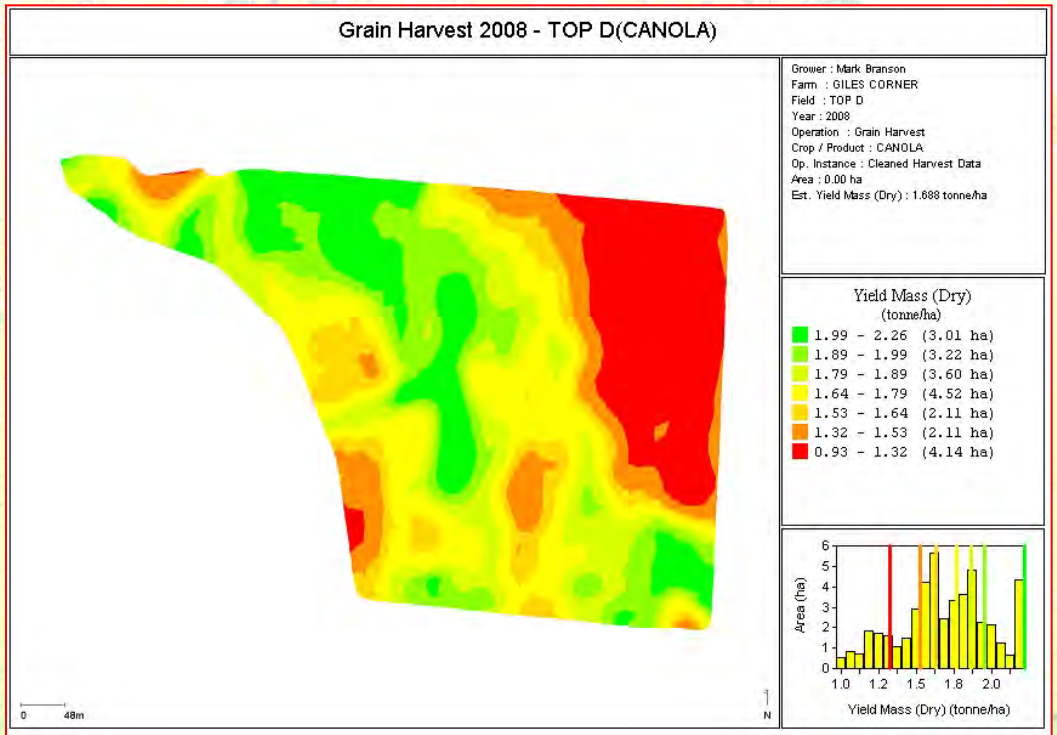
# Digital Technology



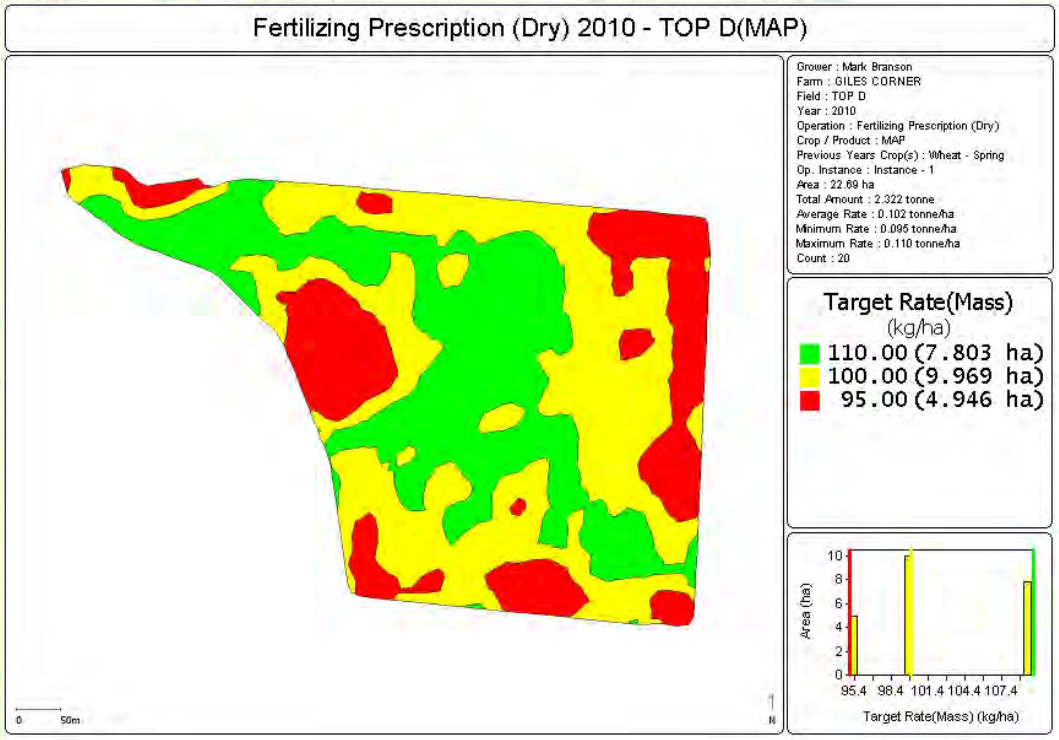
# 1. Identify Variability



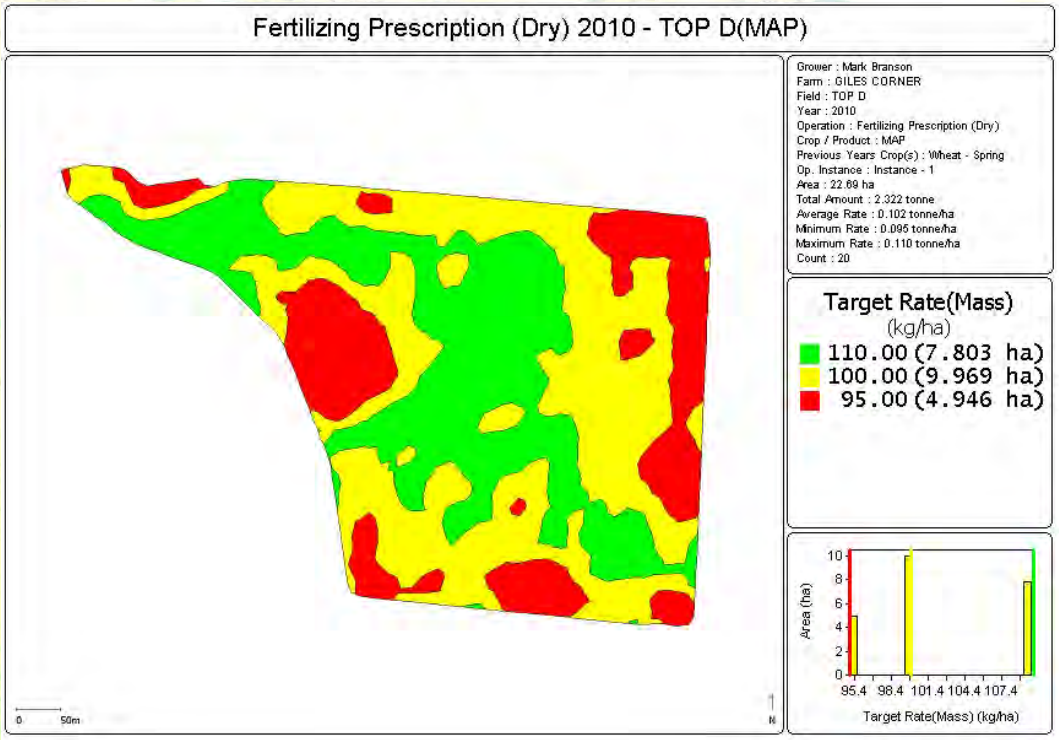
# 2. Fix problems that can be fixed



# 3. VR in areas that cannot be economically changed



# 4. Only use a digital tool if it will fix a problem.



# The Economics of CT and PA on Branson Farms.

# Economics of CTF and PA

- Savings
  - Yield Gains/Ha
    - » Wheat (380ha) $16.2
    - » Barley (260ha) $ 3.79
    - » Faba Beans (88ha) $ 1.21
    - **Total (900ha) $7.87/ha**
  - Input Overlap Savings/Ha
    - » Seed $1.69
    - » Sowing Fertiliser $3.64
    - » Chemical $1.33
    - » Post Fertiliser $0.58
    - **Total (900ha) $7.24/ha**

# Economics of CTF and PA (cont)

- Savings
  - Yield Gains/Ha $7.87/ha
  - Input Overlap Savings $ 7.24/ha
  - Nutrient Savings/ha
    - » Phosphorus $16.0/ha
    - » Nitrogen $33.78/ha
    - » Gypsum/Lime $4.36/ha

Total/ha $54.14/ha

**Total Savings $69.25/ha**

# Economics of CTF and PA

- Machinery Expenses
  - RTK GPS/Console unlocks $44,000
  - Tramline Rennovator $18,000
  - Xtra on Airseeder $15,000
  - Software $ 3,000
  - CropSpecs/Greenseeker $20,000

**Total** **$100,000**

**Total/ha over 10 years** **$11.11/ha**

# Economics of CTF and PA

- Expenses/Ha
  - Machinery $11.11/ha
  - Management Time $ 1.00/ha
  - RTK GPS Signal $ 0.17/ha

**Total Expenses $12.28/ha**

# Economics of CTF and PA

| | |
|---|---|
| **Total Savings** | **$69.25/Ha** |
| **Total Expenses** | **$12.28/Ha** |
| **Profits** | **$56.97/ha** |
| **Or Annual Profits** | **$51,271** |

# Thanks