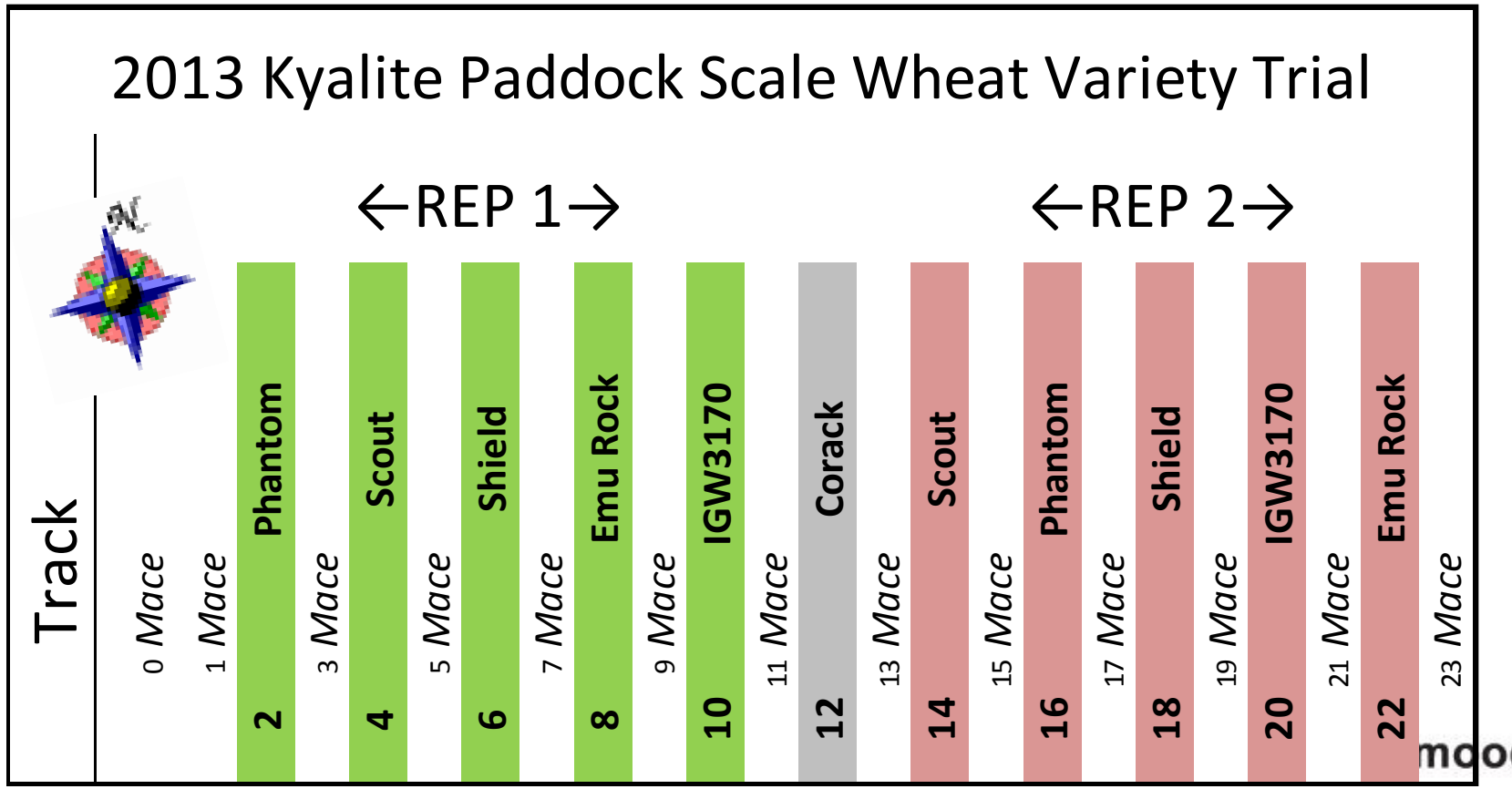
Trial Design

- Methodology involves implementing a control every second run with the treatments in-between



Direction of Paddock Variation

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Implementing the treatment strips

1. Match the plot width close to the header front width
    - Usually dictated by other machinery e.g. Seeder, spreader.
    - The downside is that you will most likely have narrow strip between treatments which needs to be harvested separately to the trial.
    - The upside is that the treatments are closer together and the trial is more compact; good for trials with lots of treatments and leaves more room for replication
    - Try to harvest in same direction

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Implementing the treatment strips

1. Make the width of each treatment greater than 2 x the width of the header front.
    - The paddock can be harvested as a whole.
    - The header passes that align best with the treatments (e.g. and harvest the whole width in the treatment) are then pulled off the yield map and analysed.
    - Best used when there are only a few treatments and/or the machinery implementing the treatments is naturally wide (e.g. fertiliser spreaders).
    - Treatments are implemented at seeding using VRA.
    - Harvest up-and-back

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Trial Implementation

- Develop a map prior to implementing the trial. It makes sure that both you and the farmer are on the same page.
- If applicable, include run numbers on the map that match up with the Autosteer guidance line numbers
- Use guidance to implement the trial. The less nerve-racking method is to implement the control strips first and then come back and fill in the gaps with the treatments.
- Make sure that there is a buffer run in addition to the first ‘control’ that sits next to a treatment. This is a good place for the things to go wrong on the first pass of the day.

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Trial Implementation

- Make sure that you and the farmer have allocated enough time to implement the trial.
- Plan out the logistics with the farmer before the trial is implemented.
  - eg try and match the quantity of seed and fertiliser put into the aircart to how much you need.
- Take your time and double check things
- The farmer will want to go a million miles an hour.
- Try and take a helper or two so you can make sure things are happening correctly.

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Trial Implementation

- Knowing where your treatments are is obviously vitally important
- Use a fixed method and digital method to ensure that the treatment locations are not lost
- Mark the centre of the trial with heavy duty fibreglass posts.
- Mark location with a GPS unit:
  - I use a Trimble Juno with Farmworks Mobile which allows templates to be developed to record information into.

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Mark the Centre of each treatment

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In-Crop Monitoring

- Monitor transects running across the treatments following a particular soil type/zone.
- Pre-define your sampling points and then follow them on a GPS unit
- If the sampling workload is too much, sample every second control strip.
- If you are soil testing prior to sowing, sample in transects within a few key soil types across the width of the trial
- We have monitored treatments with NDVI throughout the season.
- Think about header trails, wheel tracks etc.

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In-Crop Monitoring with GreenSeeker

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Harvest

- Prior to harvest, check with the farmer to ensure that his yield mapping is working ok (verify) and is well calibrated.
- Try to have two people present on the day of harvest. One to sit in the header with the farmer and plot points along each header pass labelled with the treatment they are harvesting (& yield?).
- Get the farmer to start a specific new paddock for the trial. Changing the task prior to harvesting each treatment allows you to get an average yield for that treatment.
- If want grain quality samples, make sure you unload the header after each treatment (& think about grain flow/location).
- Consider getting a new datacard to use so you can take with you.
- Controls are as important as treatments!

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Harvesting out individual strips in a paddock scale

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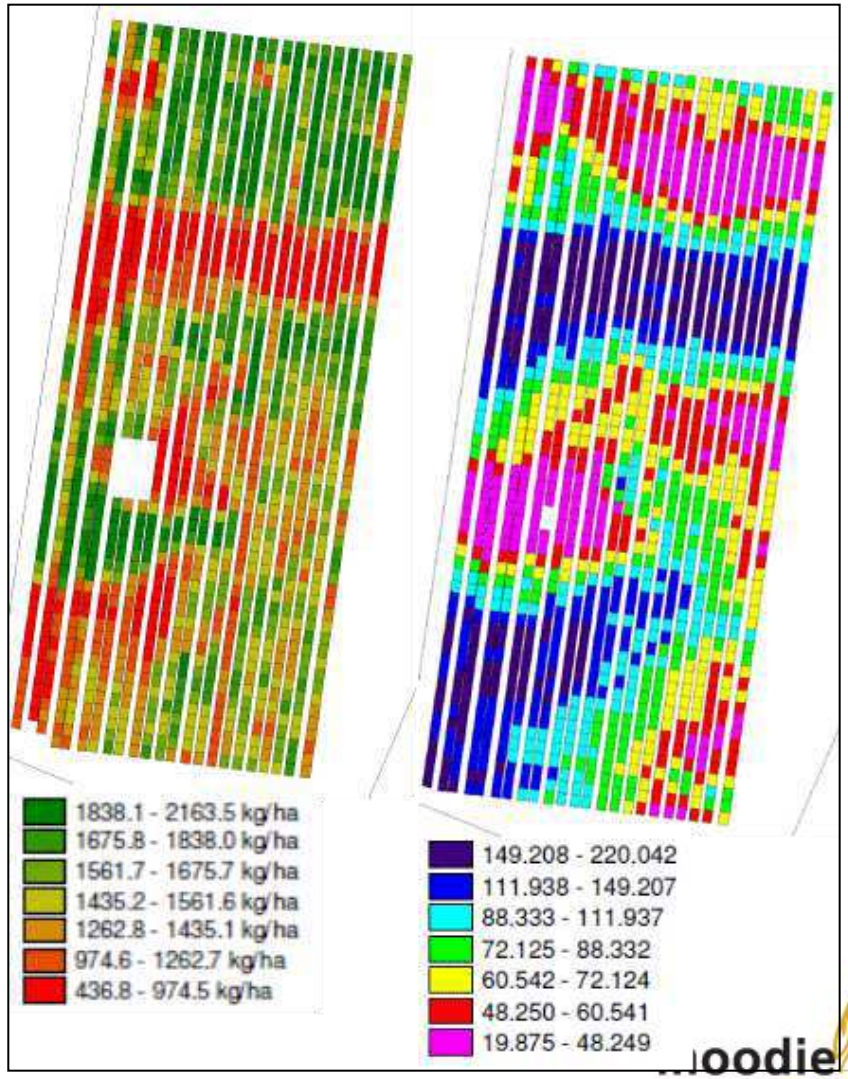
EM Mapping

- This year we EM mapped the trial strips following the harvester wheel tracks to help relate yield differences between the treatment and control to the soil type within the paddock.



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Pulling Yield Map Apart

- Ben

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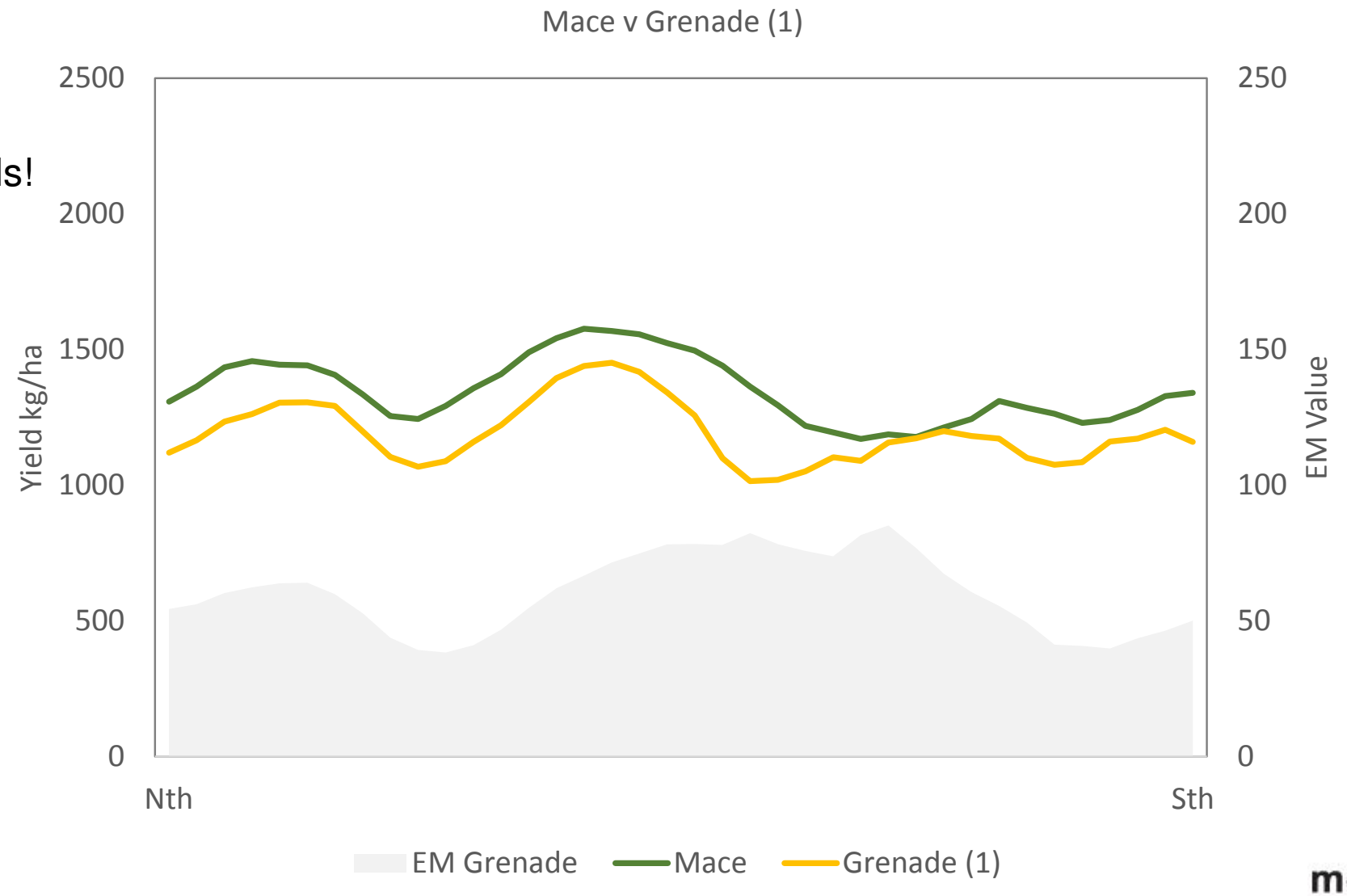
Presenting Results: Line Graph

*Show both controls!



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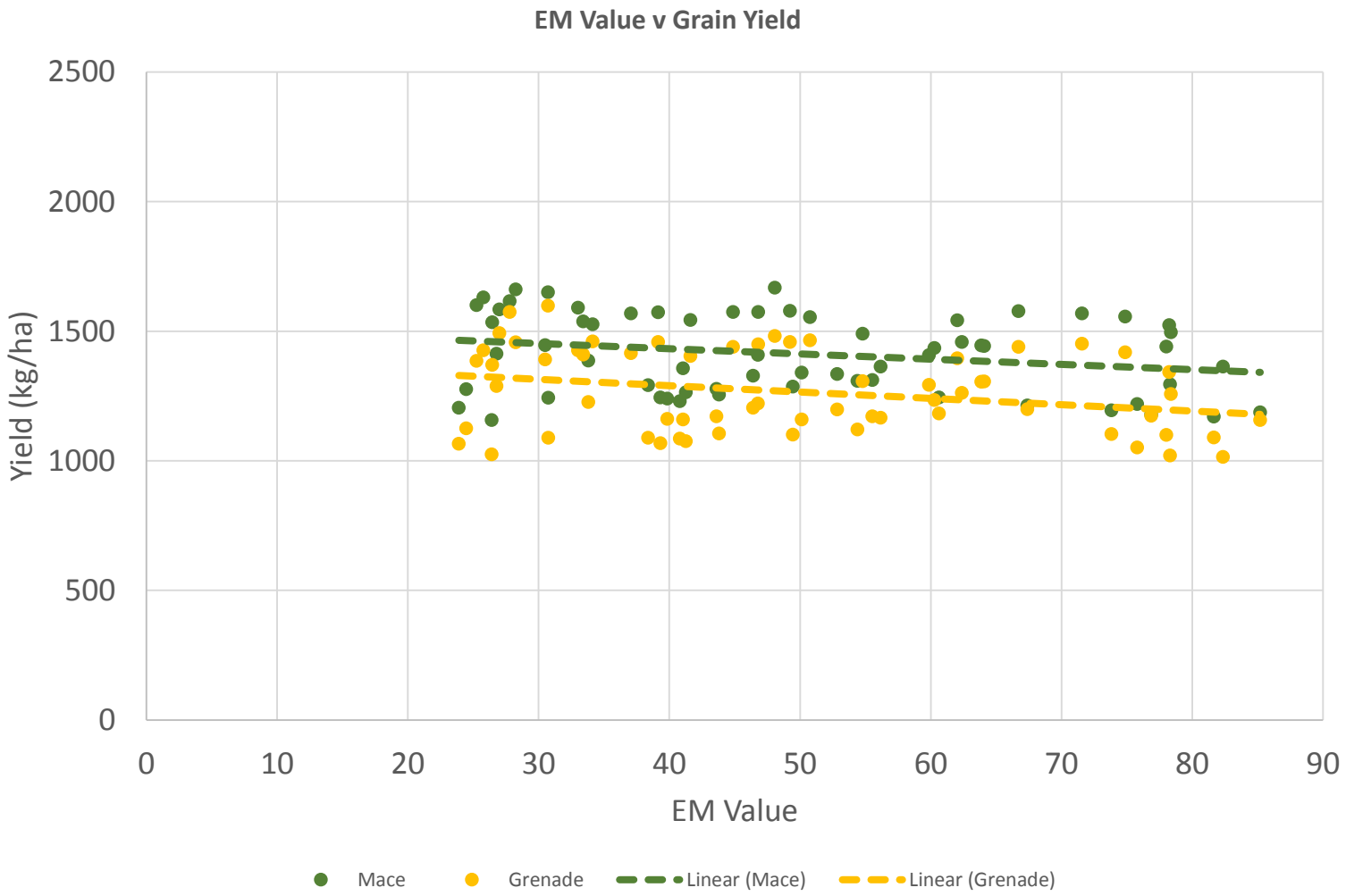
Presenting Results: Scatter Plot



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