Fertilization of Malumas – a case study

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Afrupro

Introduction

- Orchard health stand on 5 pillars
  - Irrigation
  - Fertilizers
  - Pest & Disease control
  - Pruning
  - Environment & Climate

Introductin

- Manageable pillars
  - Irrigation
    - Root health
    - Water support
    - Micro climate management

Introduction

- Manageable Pillars
  - Pest & Disease control
    - Avobug
    - Stinkbug
    - Cercospera
    - Pepperspot

Introduction

- Manageable Pillars
  - Pruning
    - Light management
    - Complexity
    - Height control
    - Size control

Introduction

- Manageable Pillars
  - Fertilizer
    - Leaf and soil management
    - Crop removal figures
    - Fruit analysis

Introduction

- Non Manageable Pillar
  - Environment
    - Chosen by producers not able to influence too much
  - Soil
    - Given
  - Climate
    - Given

Introduction

- New cultivars often ride on back of known relatives
  - Maluma vs Hass or Lamb Hass
- More commercial plantings
  - Need proper knowledge
  - Improve yield and quality

Introduction

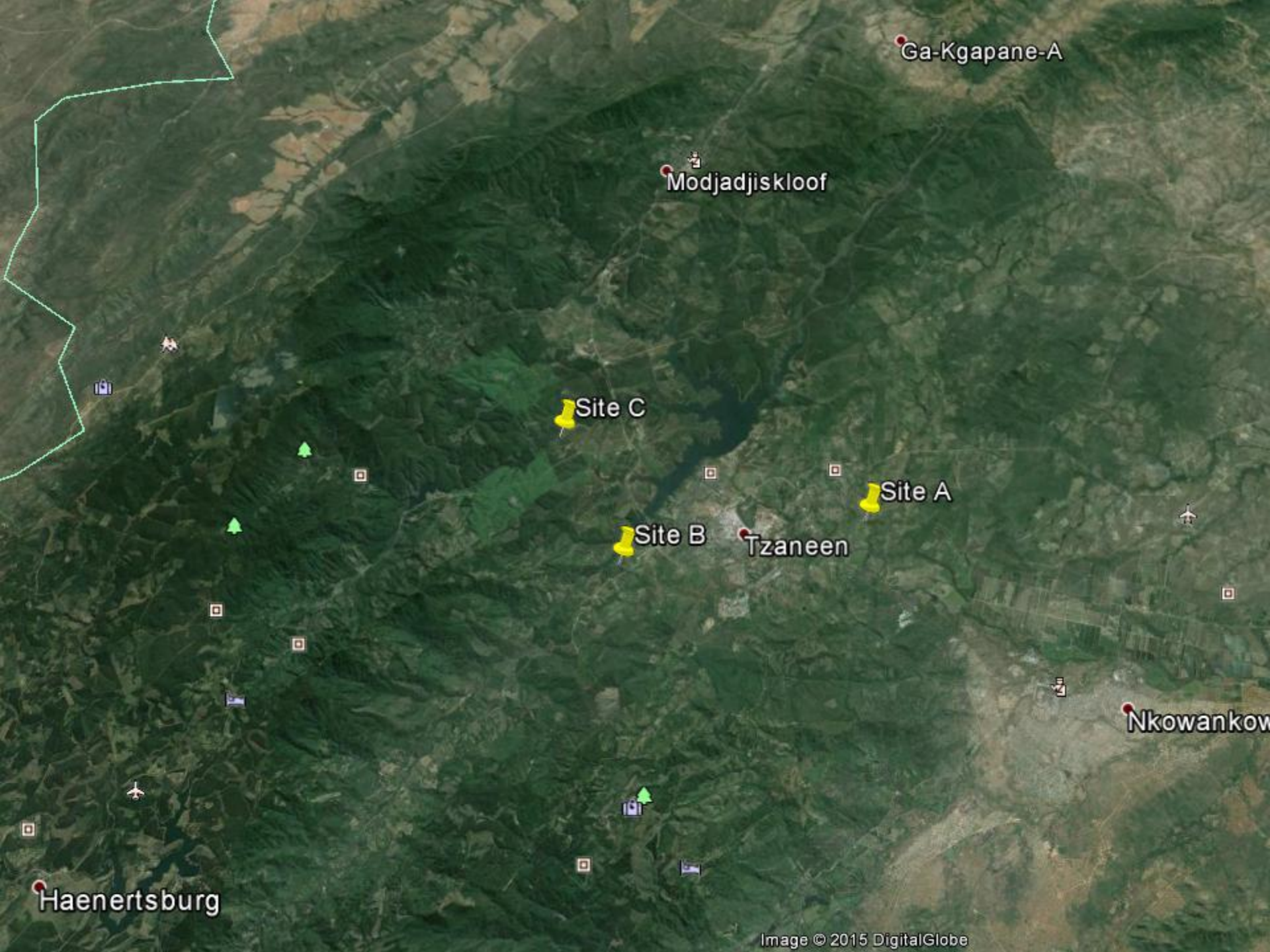
- Importance of correct leaf norms
- Importance of correct Crop removal factors
- Knowledge of phenology – when, and how much

2. Methods

- Fertilizer trials
  - Well laid out trial
  - N, P, K mostly
  - Yield related to amounts of fertilizer and tree age
- Crop Removal Trials
  - Destructive trials
  - Detailed information
- Survey trial
  - Non destructive
  - Low cost trial

2. Methods

- Survey results
  - **Same consultant**
  - **Leaf and soil analysis results**
  - **Crop removal figures as starting point**
    - **N = 5,6kg/tonnes of fruit removed**
    - **= inclusive figure i.e. takes growth development in account**


Ga-Kgapane-A
Modjadjiskloof
Site C
Site A
Site B
Tzaneen
Nkowankow
Haenertsburg
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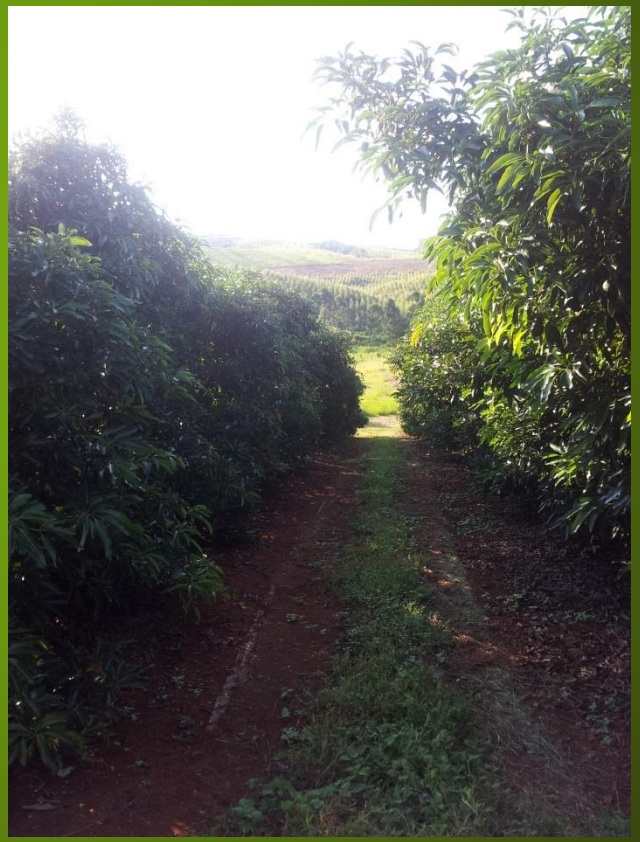
3. Trial Sites

Site description

- Site A
  - Planted in 2004
  - 7 X 3,5m
  - Duke 7

Site A



Trial Sites

Site B

Site Description

- Site B
  - Planted in 2003
  - 7m x 4m
  - Duke 7

Trial Sites

Site description

- Site C
  - Planted in 2004
  - 7m x 3,5m
  - Duke 7

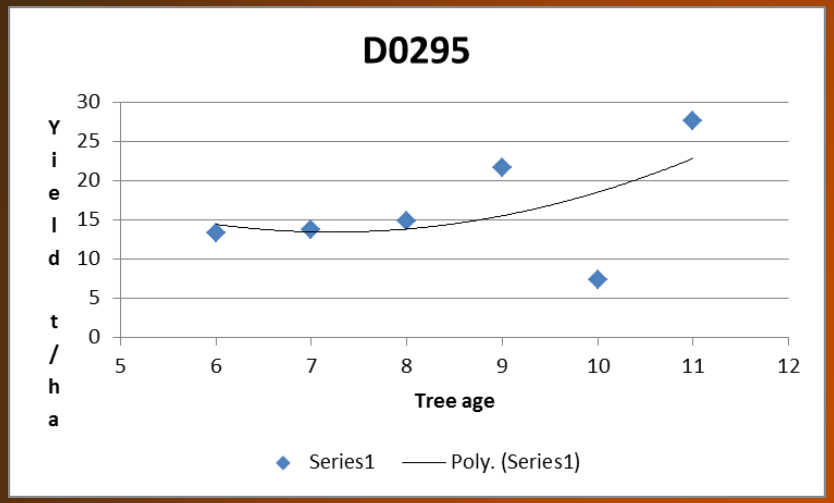
Site C

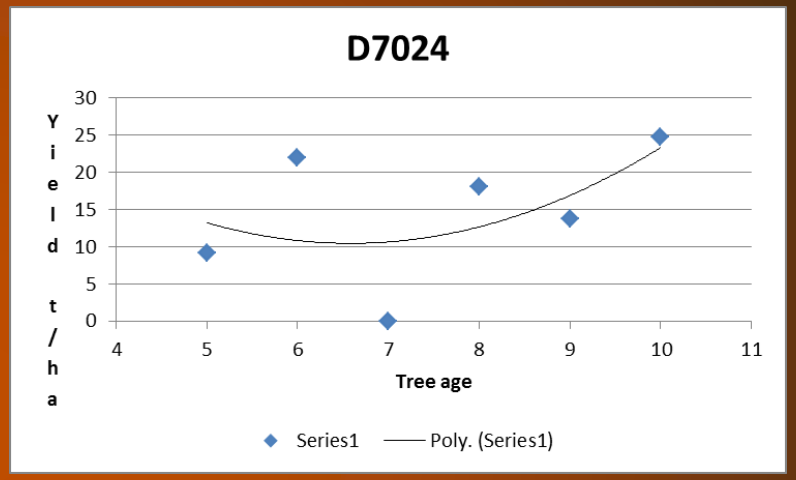
4. Results

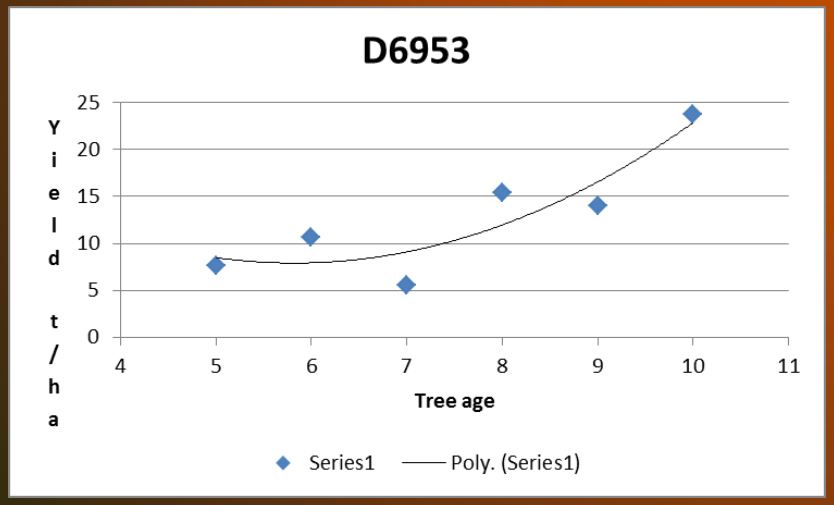
- **Yield results** (site A, B and C)

- **Other results = Site A and B**
  - Leaf N
  - Applied vs Leaf N
  - Applied vs Yield
  - Fruit analysis
    - N results

4. Results – yield results



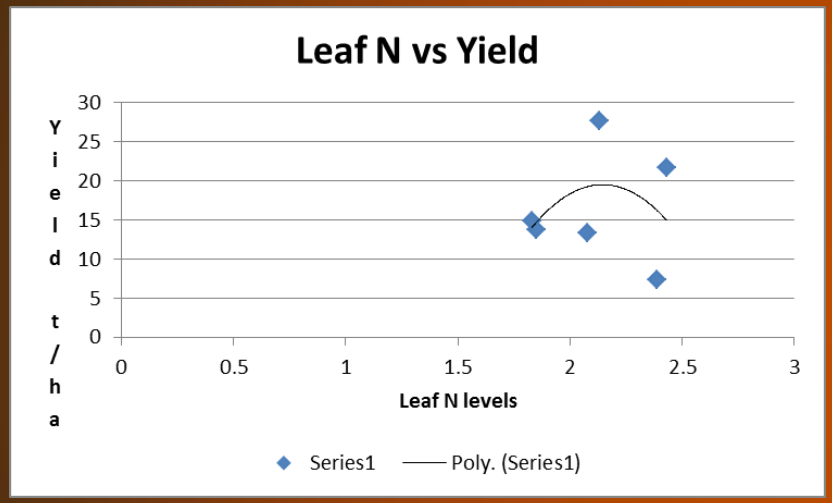




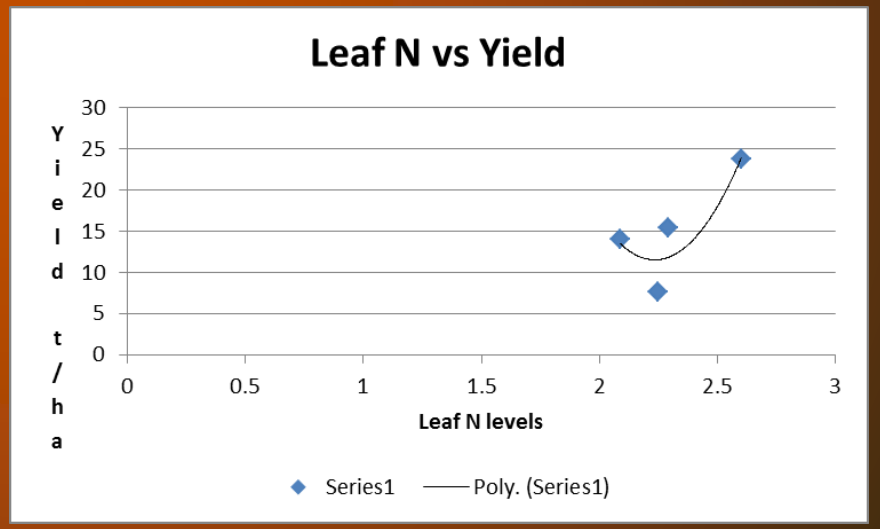
No notable differences between the three sites. A normal increase in production between years.

4. Results – Leaf N vs Yield

Site A



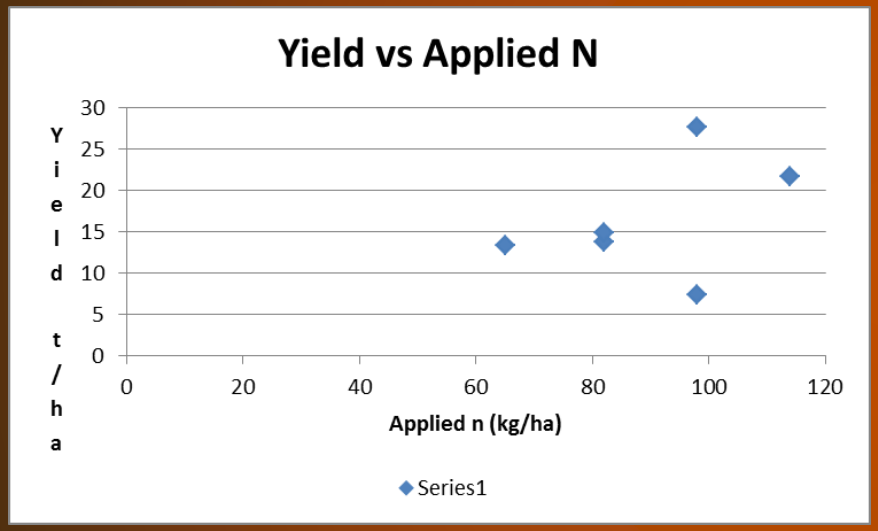
Site B



Major differences between sites.
No correlation as yet.
N levels 2,2 – 2,5% recommended

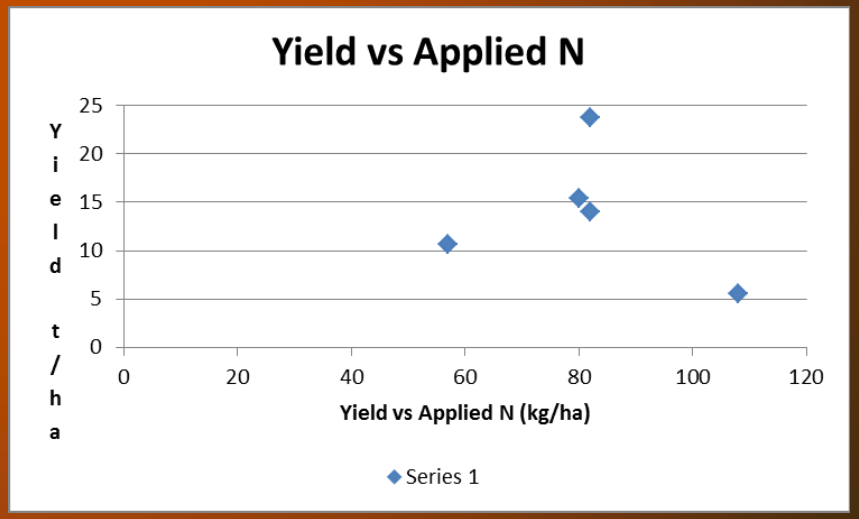
4. Results – Applied N vs Yield

Site A



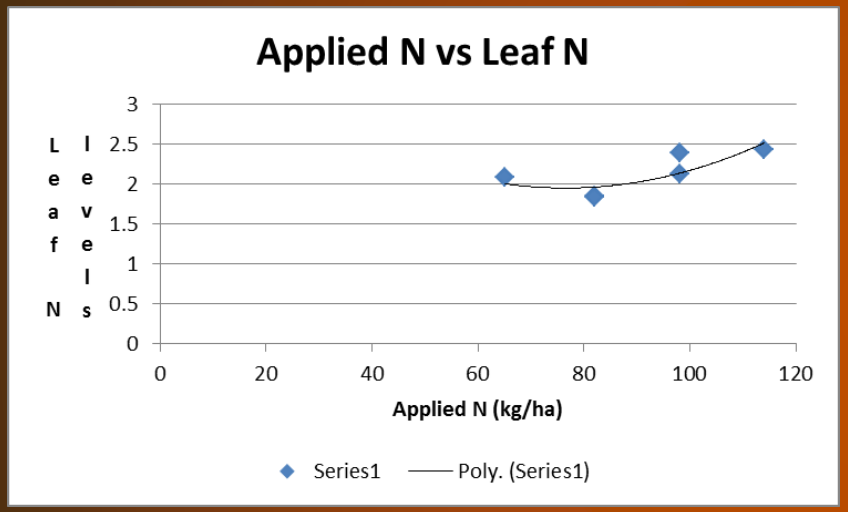
No correlation at at all. No recommend-dation to be made at this levels

Site B



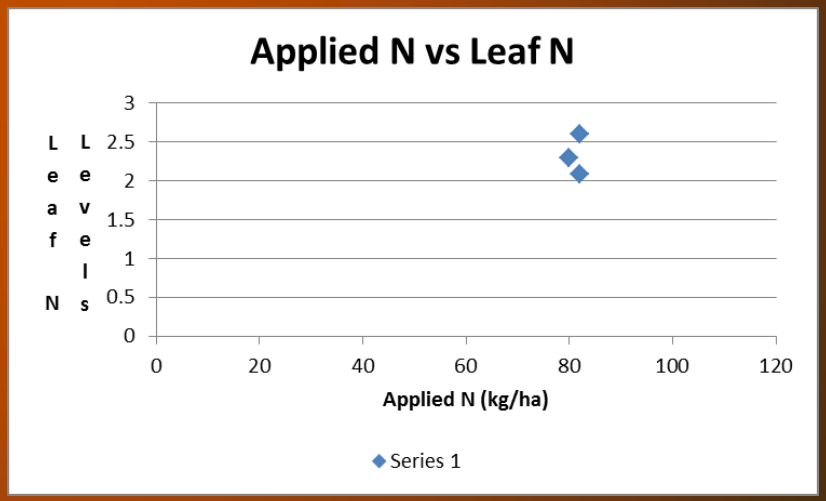
4. Results – Applied N vs Leaf N

Site A



No correlation at all.

Site B

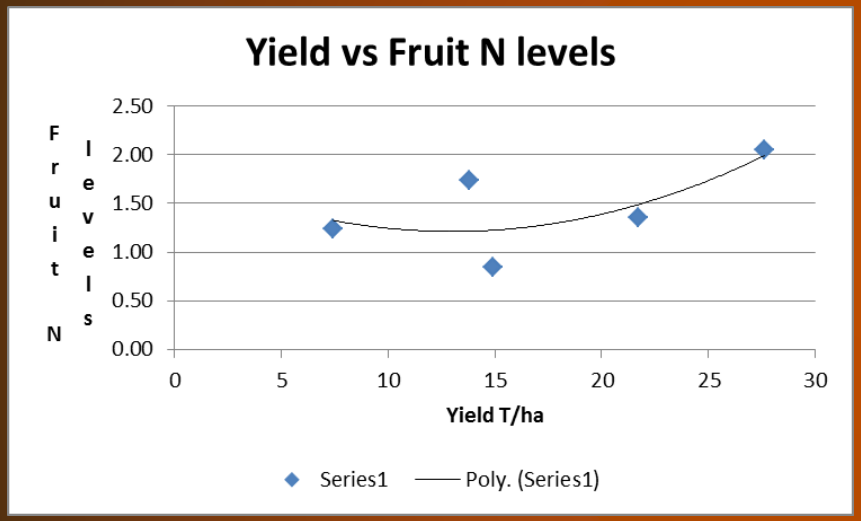


Estimated vs Actual Nitrogen use

	Site A				Site B			
	Est CRF	Est Yld	Act CRF	Act Yld	Est CRF	Est Yld	Act CRF	Act Yld
6yr	4.56	18	5.94	13.8				
7yr	4.56	18	5.50	13.3	5.70	10	5.38	10.6
8yr	4.56	25	5.25	21.7	7.20	15	19.29	5.6
9yr	4.90	20	13.24	7.4	4.00	20	5.19	15.4
10yr	4.90	20	3.55	27.4	5.47	15	5.86	14.0
11yr					5.47	15	3.46	23.7

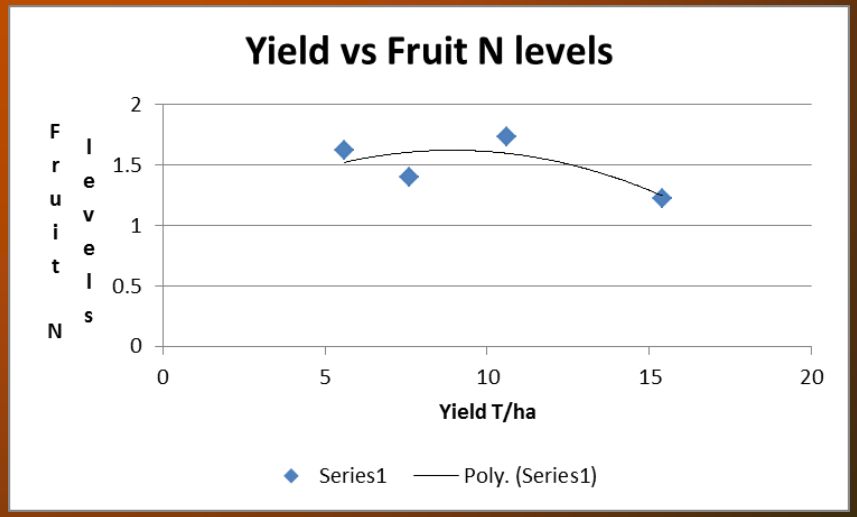
4. Results - Fruit analysis

Site A



No direct correlation with respect to yield. More related to quality issues

Site B



5. Conclusions

- Indications are that Maluma does not have the same requirements as Hass
- Alternate bearing does not seem to be a serious issue as yet, but trees are still youngish.

5. Conclusions

- Proper research needs to be done to verify trends
- Fastest results to do Crop Removal trials
- Long term trials too cumbersome