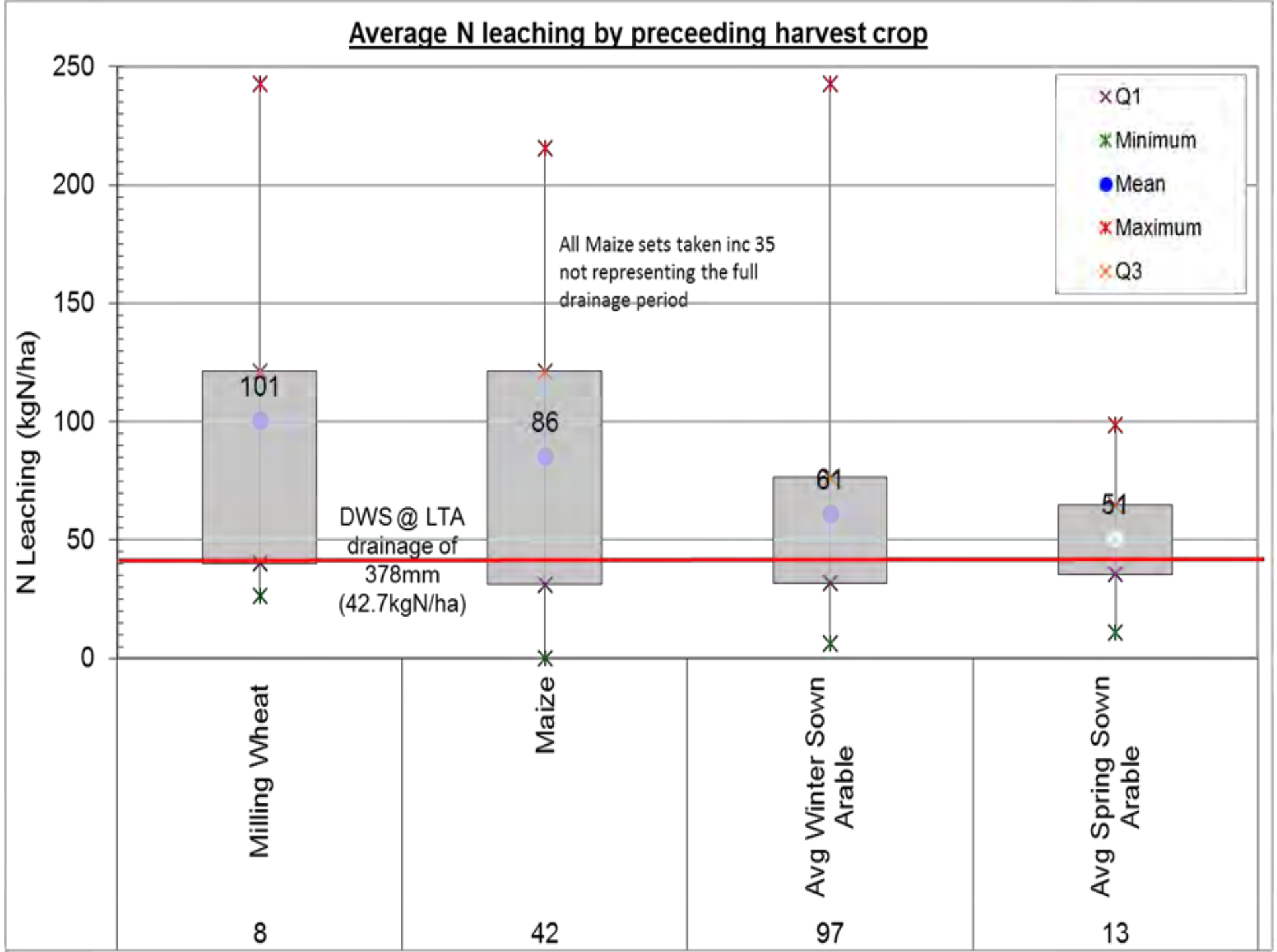

Maize is a Great Crop
and is not the problem!

Why do farmers grow Maize?

- Animals like and perform on it
- Highest gas yield (digesters)
- Consistent quality
- Relatively low cost
- Easy to grow
- Wide harvest window
- Valuable starch
- Etc etc

So what is the problem?:

- Compaction as the result of harvest
  - Soil erosion
  - Soil wash
- Nutrient Overload
  - Oversupply of nutrient
    - Organic manures
    - Phosphate


Average N leaching by preceeding harvest crop
N Leaching (kgN/ha)
250
200
150
100
50
0
Q1
Minimum
Mean
Maximum
Q3
All Maize sets taken inc 35 not representing the full drainage period
DWS @ LTA drainage of 378mm (42.7kgN/ha)
101
86
61
51
Milling Wheat
Maize
Avg Winter Sown Arable
Avg Spring Sown Arable
8
42
97
13

Options for change

- Review Site Suitability
- Correct Variety Choice
- Earliest Drilling date
- Correct Nutrient supply
- Timely Harvest date
- Post harvest management
  - Undersowing
  - After sowing

Site Suitability

Step	***Field Score***
1. Harvest Date	
2. Drilling Date	
3. Altitude/Aspect	
4. Soil Type/Drainage	
5. Annual Rainfall	
6. Gradient	
7. Proximity to Environmental Features	
8. County/Region	
TOTAL SCORE	

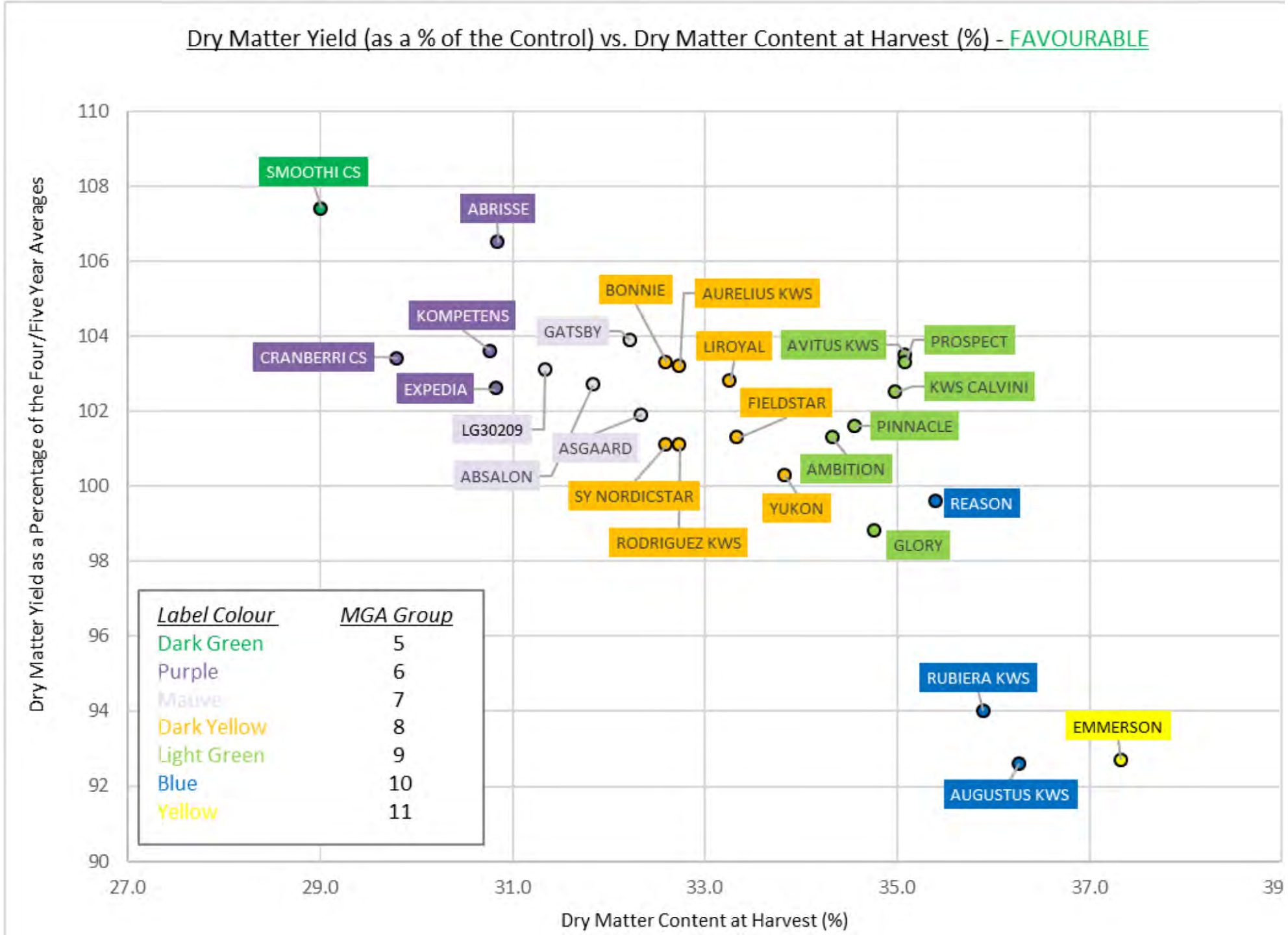
Site Suitability

Key to MGA Maturity Group Colour Coding

Colour	MGA Group	Time of Maturation
Dark Red	3	Very Late
Pink	4	
Dark Green	5	
Purple	6	
Mauve	7	
Dark Yellow	8	‘Normal’
Light Green	9	
Blue	10	
Light Yellow	11	
Red	12	Very Early

Options for change

- Review Site Suitability
- Correct Variety Choice
- Earliest Drilling date
- Correct Nutrient supply
- Timely Harvest date
- Post harvest management
  - Undersowing
  - After sowing


Dry Matter Yield (as a % of the Control) vs. Dry Matter Content at Harvest (%) - FAVOURABLE
Dry Matter Yield as a Percentage of the Four/Five Year Averages
Dry Matter Content at Harvest (%)
110
108
106
104
102
100
98
96
94
92
90
27.0
29.0
31.0
33.0
35.0
37.0
39
SMOOTHI CS
ABRISSE
BONNIE
AURELIUS KWS
KOMPETENS
GATSBY
LIROYAL
AVITUS KWS
PROSPECT
CRANBERRI CS
EXPEDIA
KWS CALVINI
FIELDSTAR
LG30209
PINNACLE
ASGAARD
AMBITION
ABSALON
SY NORDICSTAR
YUKON
REASON
RODRIGUEZ KWS
GLORY
RUBIERA KWS
EMMERSON
AUGUSTUS KWS
Label Colour
MGA Group
Dark Green
5
Purple
6
Mauve
7
Dark Yellow
8
Light Green
9
Blue
10
Yellow
11

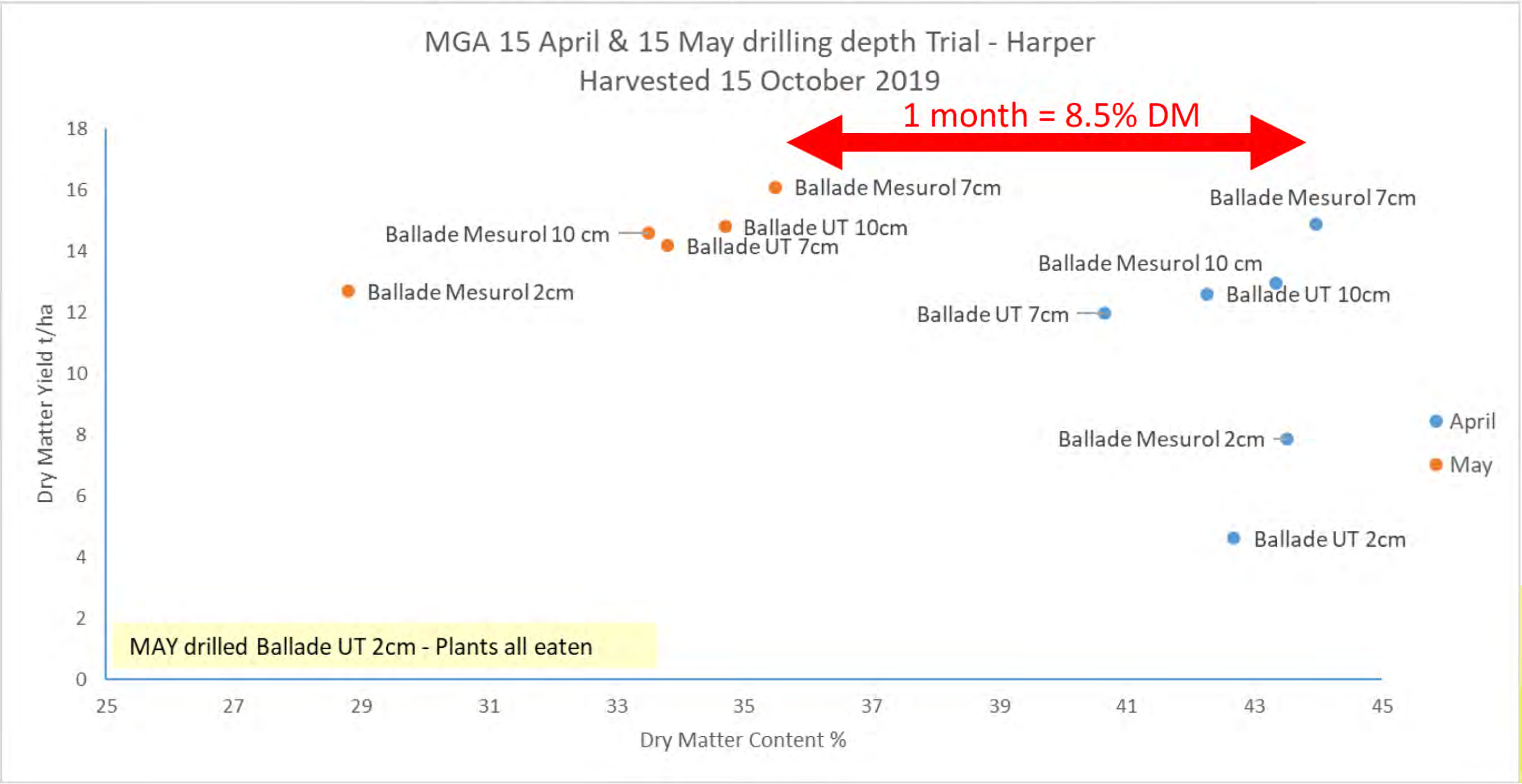
MGA
Recommended Maize Varieties
2020

Options for change

- Review Site Suitability
- Correct Variety Choice
- Earliest Drilling date
- Correct Nutrient supply
- Timely Harvest date
- Post harvest management
  - Undersowing
  - After sowing

Drilling Date

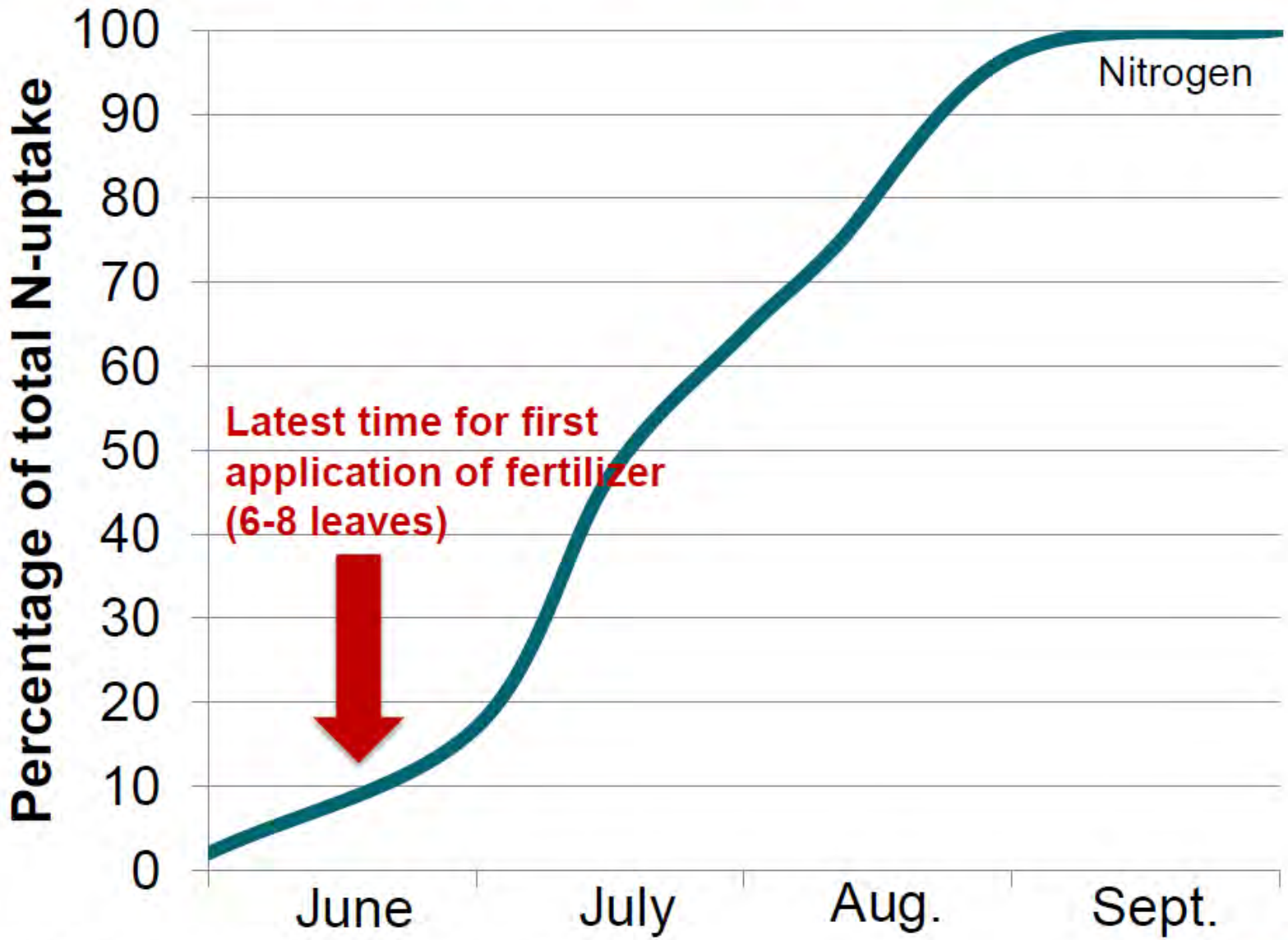
- The earlier the drilling the earlier the harvest


MGA 15 April & 15 May drilling depth Trial - Harper
Harvested 15 October 2019
1 month = 8.5% DM
Dry Matter Yield t/ha
Dry Matter Content %
Ballade Mesurol 7cm
Ballade Mesurol 10 cm
Ballade UT 10cm
Ballade UT 7cm
Ballade Mesurol 2cm
Ballade Mesurol 7cm
Ballade Mesurol 10 cm
Ballade UT 10cm
Ballade UT 7cm
Ballade Mesurol 2cm
Ballade UT 2cm
April
May
MAY drilled Ballade UT 2cm - Plants all eaten

Options for change

- Review Site Suitability
- Correct Variety Choice
- Earliest Drilling date
- Correct Nutrient supply
- Timely Harvest date
- Post harvest management
  - Undersowing
  - After sowing

NITROGEN UPTAKE DURING THE GROWING SEASON



SP ber. nr. 1741

SEGES

25t/ha (10t/ac) 15, 48 & 213

50t/ha (20t/ac)

MGA Nitrogen Predictor

MGA NITROGEN PREDICTOR

Make better use of expensive Nitrogen by only applying what is needed.
Save money and reduce leaching

Members Name:	Farm Name:

			Nitrogen Prediction	
Field Name	Field Size (hectares)	Variety	(kg/ha)	(units/acre)
Drainwoods	8	Absalon	150	120
Besthorpe	2	Absalon	112	90
Blackbarn	17	Lovely/Emblem	150	120

NVZ Warning: In drawing up the ***N Predictor*** recommendations, no account has been taken of the NVZ N max for maize (150 kg/ha). Farmers in an NVZ should ensure that they do not exceed the maximum allowable amount of N (N max) on their maize crops.

Introduction
The table above sets out the approximate requirement for inorganic Nitrogen on maize grown in your individual fields.

The recommendation is based on the information you entered on your Data Sheet. Additions and deductions are made from a standard crop requirement of 188 kg/ha (150 units/acre) as a result of these answers.

NB
To ensure that N is supplied to the crop when it most needs it we recommend that you apply 60% of the Nitrogen pre-emergence with the remainder being applied post-emergence at the 2 - 4 leaf stage. Where the recommendation is 30 units or less we recommend that remaining N, after application of starter fertiliser, is all applied post-emergence at the 2 - 4 leaf stage.

If you are unhappy with the recommendation that has been generated please contact the office before fertilising the crop.

How is the recommendation generated?
The predictor takes many factors into account. Some of the logic behind its decisions has been set out here:

Variety and harvest date
Nitrogen applications should be tailored so that maize reaches maturity at suitable harvest date. Too much Nitrogen causes maize to mature more slowly.
To ensure late varieties reach maturity in most seasons it is vital that not too much Nitrogen is applied.

Soil Type
Heavier soils tend to retain more natural fertility leaving less of a requirement from inorganic sources.

Soil Structure
Maize has a deep root system. Nitrogen levels need to be increased to feed the plants with limited room for root growth.

Previous Cropping / Past History
Residual soil Nitrogen available to the maize crop depends largely on the past history of the field.

Spring / Autumn Rainfall
Heavy rainfall pre drilling has the potential to leach Nitrogen out of the soil thereby increasing the inorganic requirement.

Drilling Date
Early drilled crops may need extra Nitrogen to reach their potential. Later drilled crops have a shorter growing season and will use less.

Organic manure
The amount, type and timing of organic manure applications influence the amount of organic Nitrogen available.

Keeping records of organic manure applied will allow more accurate applications of fertiliser.

Phosphate fertiliser

UK (RB209) and Danish Recommendations for use of starter phosphate

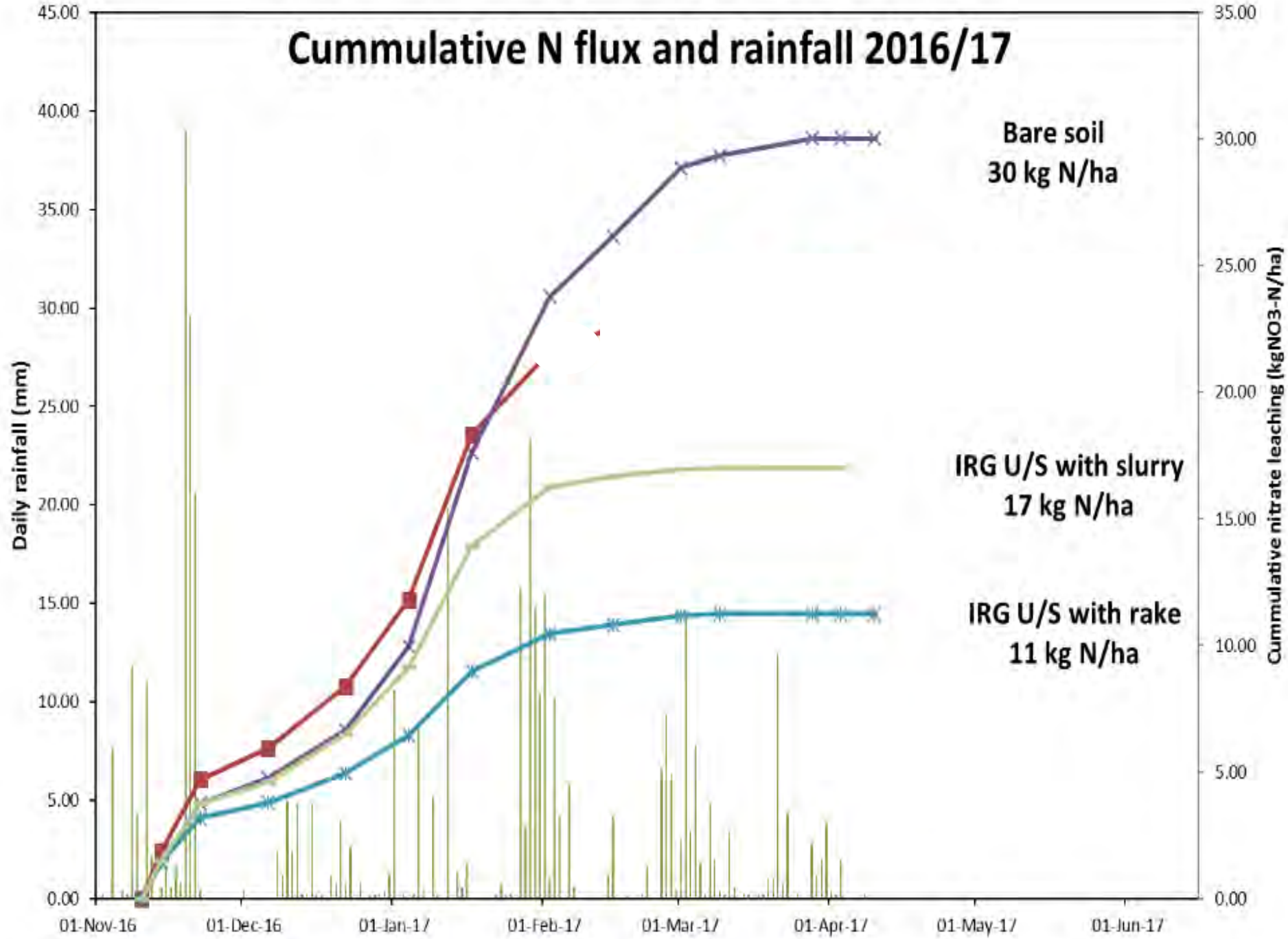
Olsen-P mg/kg (UK P index)	0-9 (0)	10-15 (1)	16-25 (2)	26-45 (3)	46-70 (4)
	Kg P_2O_5 per ha				
RB209 (total crop requirement)	115	85	55	20	0
Danish -Good potential for root growth (1)			34	23	0
Danish Bad potential for root growth (2)			34	34	23

Options for change

- Review Site Suitability
- Correct Variety Choice
- Earliest Drilling date
- Correct Nutrient supply
- Timely Harvest date
- Post harvest management
  - Undersowing
  - After sowing

Options for change

- Review Site Suitability
- Correct Variety Choice
- Earliest Drilling date
- Correct Nutrient supply
- Timely Harvest date
- Post harvest management
  - Undersowing
  - After sowing


Cummulative N flux and rainfall 2016/17
Bare soil
30 kg N/ha
IRG U/S with slurry
17 kg N/ha
IRG U/S with rake
11 kg N/ha
Daily rainfall (mm)
Cummulative nitrate leaching (kgNO3-N/ha)
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
01-Nov-16
01-Dec-16
01-Jan-17
01-Feb-17
01-Mar-17
01-Apr-17
01-May-17
01-Jun-17

GOOD SOWING TECHNIQUE NECESSARY

3 trials in 2014
Per cent germination

12

27

45

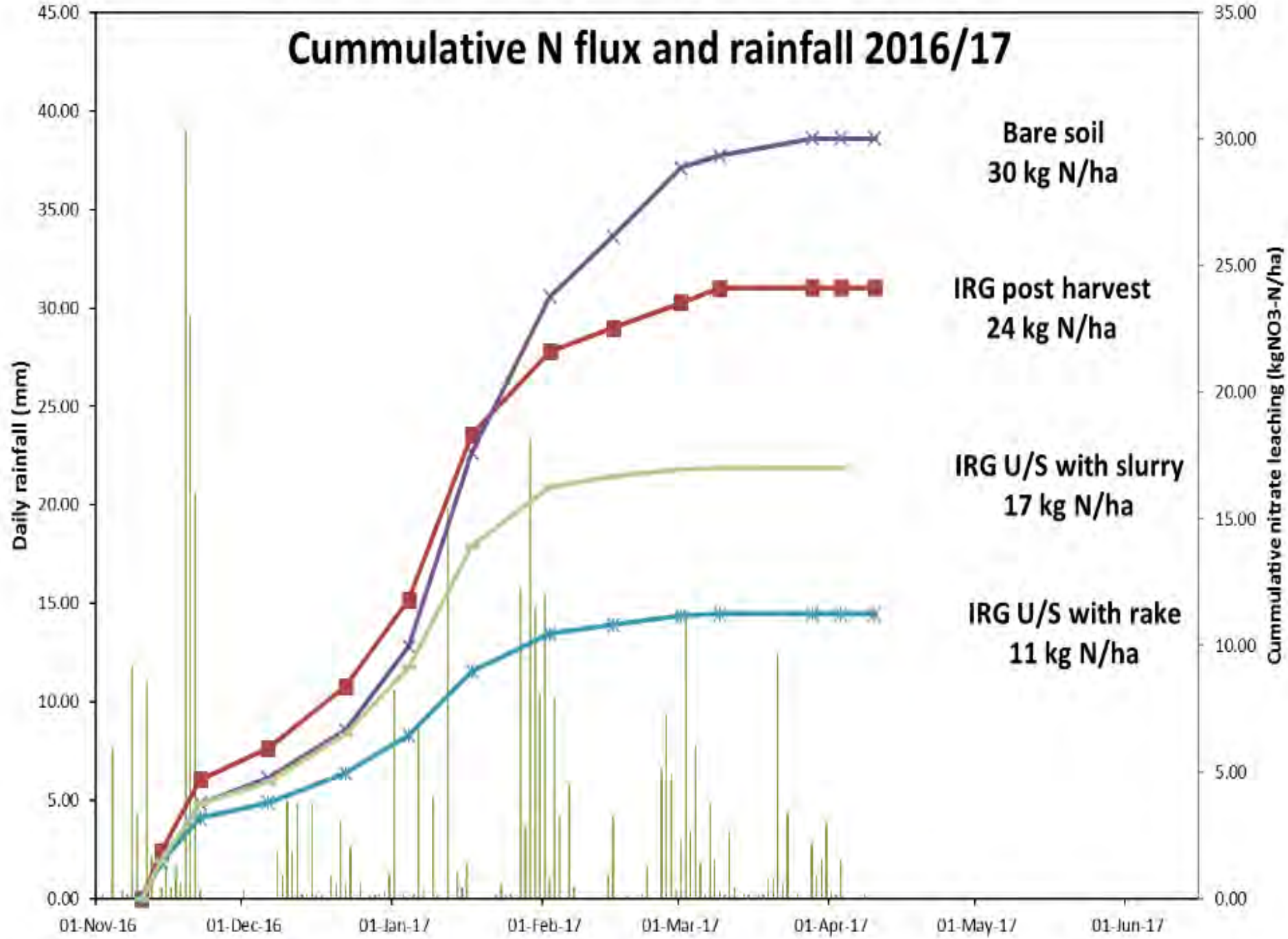
SEGES

Post Harvest management

Timeliness

Measuring run-off at IGER

Undersown	Chisel plough	Stubble	Cover crop
53 litres	1litre	228 litres	179 litres


Cummulative N flux and rainfall 2016/17
Daily rainfall (mm)
Cummulative nitrate leaching (kgNO3-N/ha)
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
01-Nov-16
01-Dec-16
01-Jan-17
01-Feb-17
01-Mar-17
01-Apr-17
01-May-17
01-Jun-17
Bare soil
30 kg N/ha
IRG post harvest
24 kg N/ha
IRG U/S with slurry
17 kg N/ha
IRG U/S with rake
11 kg N/ha

Conclusions

- Not maize but inappropriately grown maize which is the problem
- Is the site suitable – MGA Site Selector
- Choose an early maturing variety
- Drill as early as soil conditions and temperature allow
- Apply nutrient based on crop need
- Harvest when fit at 32% DM – monitor DM regularly from Mid August
- Plan post maize winter field management
  - Under sowing – drill – works well
  - Post harvest management – if cropping harvest early and act quickly.

Thank You for listening