



MAIZE TRIALS 2023

MGA N Curve Trial

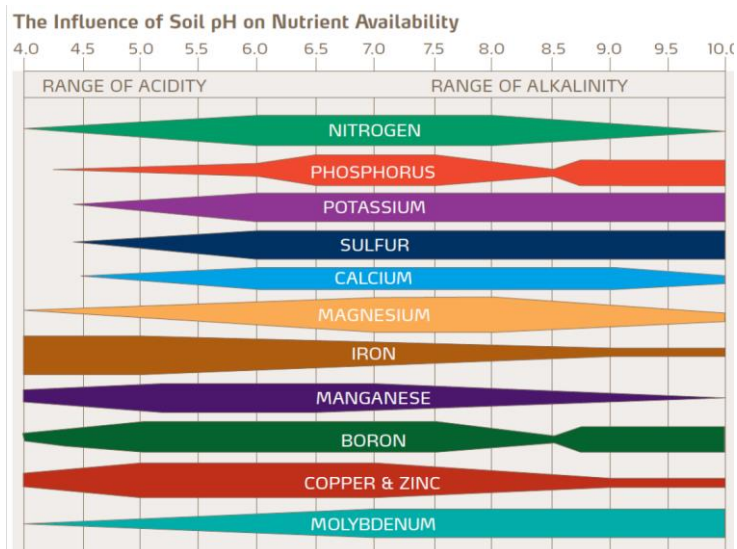
Forage maize – nitrogen, phosphate and potash

Table 3.19 Nitrogen, phosphate and potash recommendations for forage maize

Nutrient	SNS, P or K Index				
	0	1	2	3	4 and higher
	kg N/ha				
Nitrogen	150	100	50	20	0
Phosphate ^a	115	85	55	20	0
Potash ^a	235	205	175 (2-) 145 (2+)	110	0

a. Estimates based on a 40 t/ha fresh weight yield. Use Table 3.2 to adjust for higher or lower yields.

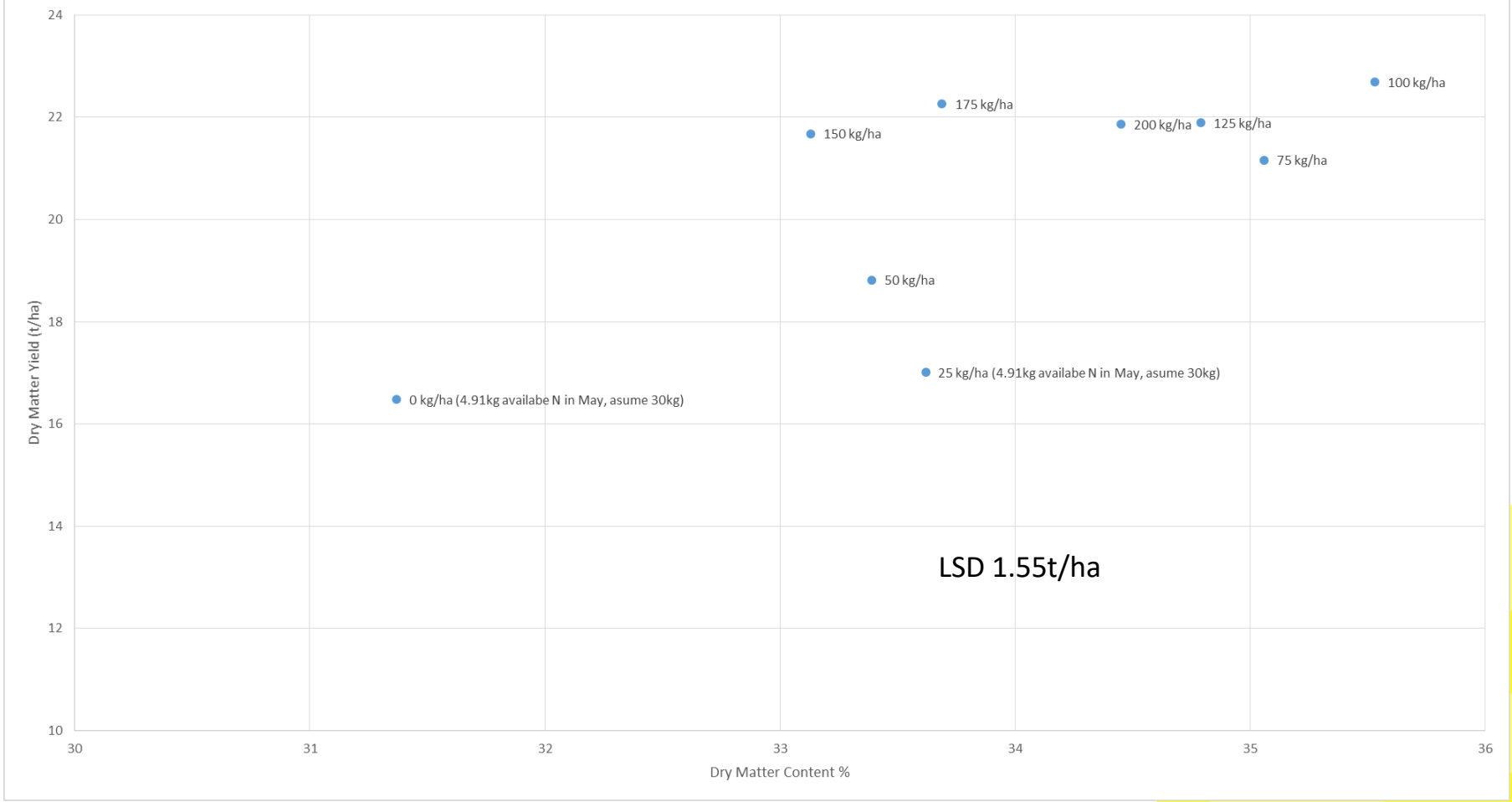
Evidence is being gathered by the Maize Growers Association (MGA) that forage maize could respond to higher levels of nitrogen. Currently there is not enough data to justify changing the recommendations but it is area of further work. Discuss with a FACTS Qualified Adviser and use MGA's nitrogen predictor form.



MGA N Curve Trial 2023 - Norfolk



MGA N Curve Norfolk 2023
Drilled 2 May 2023
Harvested 16 September 2023
Thinned to 95,000 plants/ha



MGA N Curve Trial 2023 - Norfolk

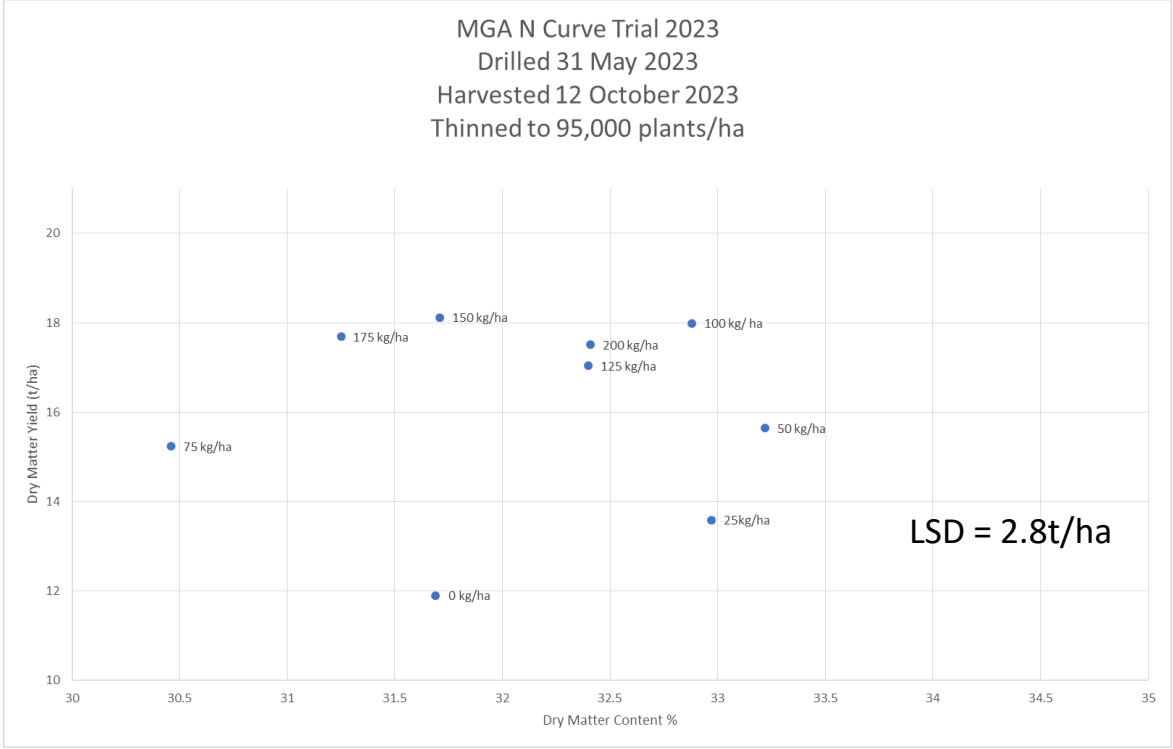


	DM%	DM Yield (t/ha)	Starch %	ME	CWD	Starch Yield	ME Yield
0 kg/ha (4.91kg available N in May, assume 30kg)	31.37	16.48	37.4	11.2	52	6.2	185
25 kg/ha (4.91kg available N in May, assume 30kg)	33.62	17.01	37.2	11.5	54.1	6.3	196
50 kg/ha	33.39	18.82	36.7	11.3	51.7	6.9	213
75 kg/ha	35.06	21.16	34.8	10.9	50.6	7.4	231
100 kg/ha	35.53	22.69	38.1	11.3	51.4	8.6	256
125 kg/ha	34.79	21.89	37.7	11.5	53.6	8.3	252
150 kg/ha	33.13	21.68	32.8	11.0	52.9	7.1	238
175 kg/ha	33.69	22.26	33.2	11.0	52.1	7.4	245
200 kg/ha	34.45	21.86	38.2	11.4	53.1	8.4	249

MGA N Curve Trial 2023 - Harper



MGA N Curve Trial 2023 - Harper



MGA N Curve Trials



take home message:

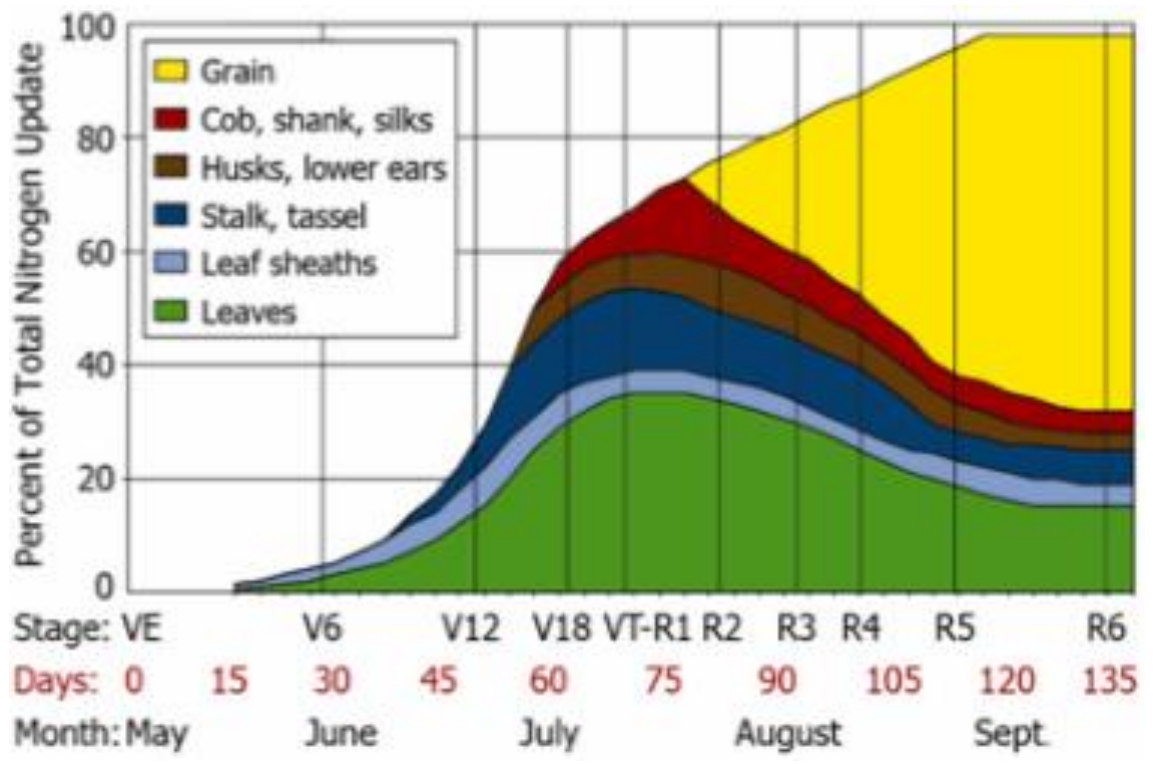
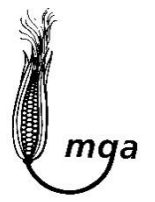
Check soil pH to ensure no nutrient lock up

On fertile soils with history of FYM and slurry unlikely to need any bagged nitrogen

Use of over winter cover crops can provide 30-50kg N to maize crop

SFI Nutrient Management Plan - NUM1 pays £652 per year
should be routine for all growers.

MGA Foliar N Trials 2023



MGA Foliar N Trials 2023



A range of scorch free foliar nitrogen products are now available to growers for application to the growing crop.

MGA trial tested at manufacturers rate and $\frac{3}{4}$ rate but on plots where total N limited to 50% of N Predictor rate to allow expression of yield

Intracrop Nutrino Pro

Omex MU 35

Efficient 28

MZ 28

Foliar N300

Poly N Plus Maize

MGA Foliar N Trials 2023



Intracrop Nutrino Pro			
Contains		% w/w	g/l
Pidolic acid R100			4
Nitrogen	N	23	293
Magnesium	MgO	2.6	33
Sulphur	SO ₃	5.1	65
Omex MU 35			
		%w/w	%w/V
Total N		28%	35.00%
Urea N		11.50%	14.50%
Methylene Urea		16.50%	20.50%
Effiecient 28			
Total N		28%	
Polymer N		22%	
Ureic N		6%	
MZ 28			
Total N		28%	
Polymer N		16.50%	
Ureic Acid		11.50%	
Yara Safe N 300			
Total N			31.20%
31.2% w/v = 312 g/l N (14.7% w/v Ureic N, 4.9% w/v Nitrate N, 4.9% w/v Ammonium N, 6.7% w/v metholene urea)			
Poly N Plus - Billericay Fertiliser Services			
PolyNPlus Maize (30-0-0-6+3.7Zn)			



MGA Foliar N Trials 2023



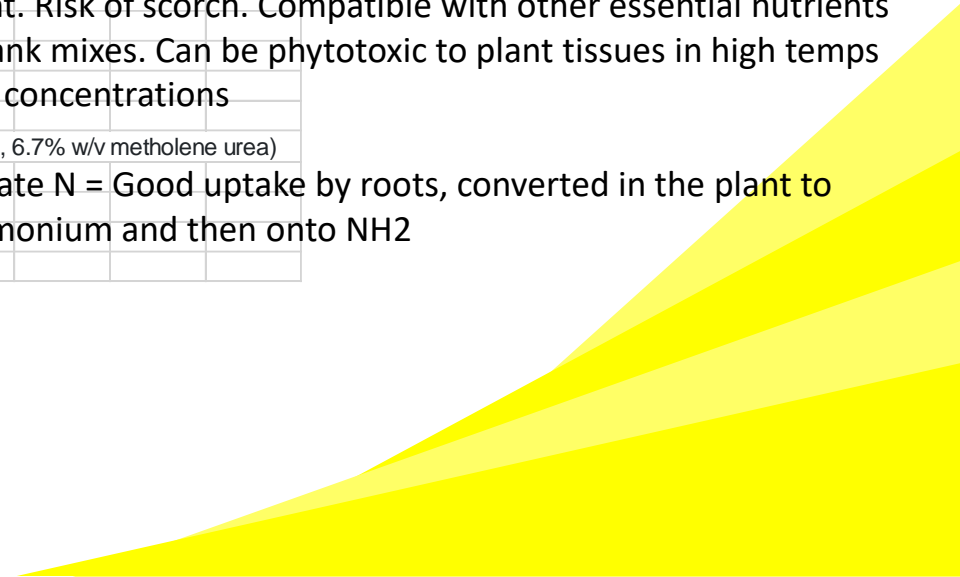
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Contains		% w/w	g/l
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Ureic N = Urea N = dissolved Urea in solution, absorbed easily, low dose rates required. Absorbed directly by plant through the leaves, not able to apply in single dose plants requirement. Risk of volatilisation and leaf burn especially in high temps or if high concentrations applied.

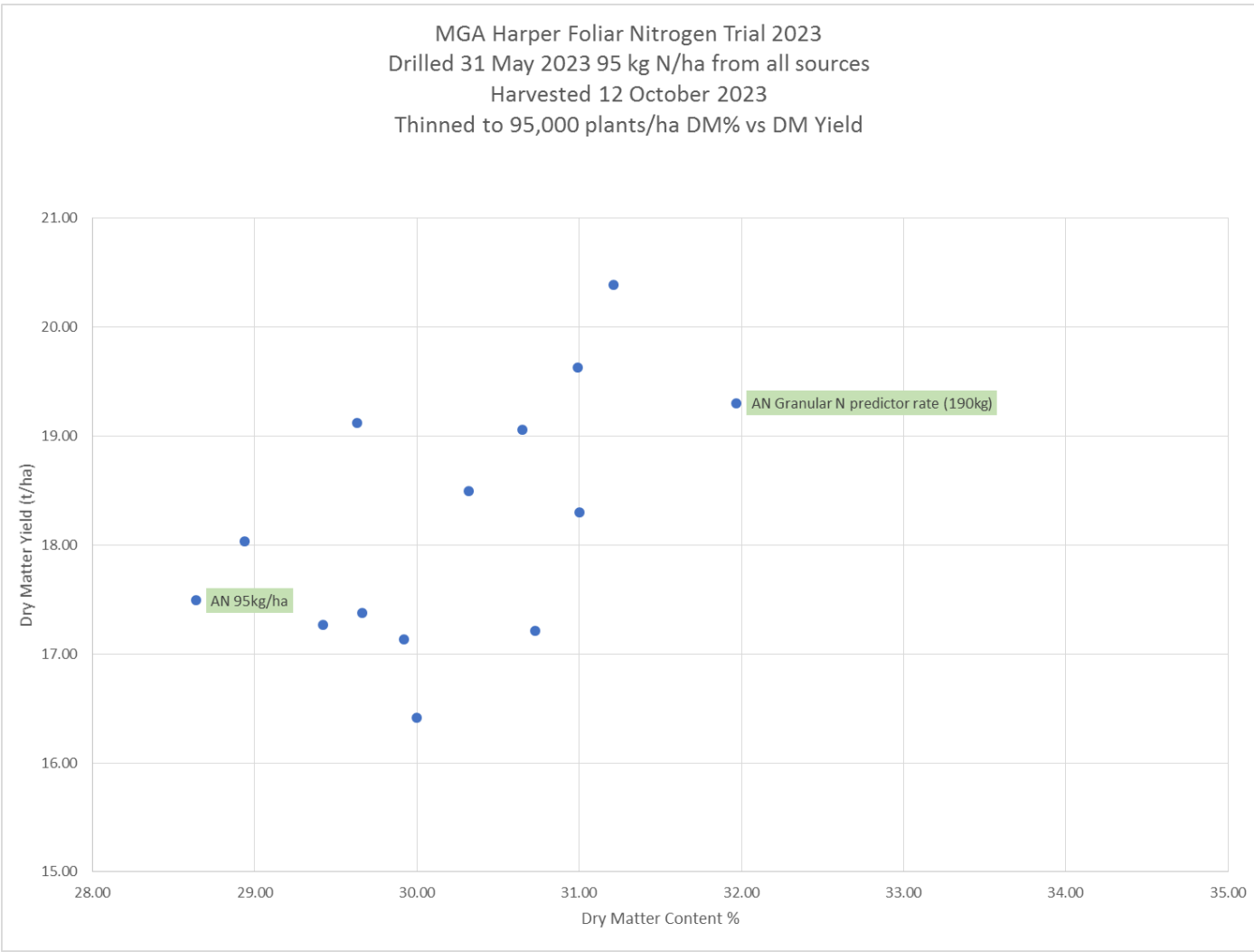
Polymer N = urea formaldehyde = Methylene urea = Methanal Urea all have phased release over 6 weeks. Absorbed as NH₂ directly by plant. More expensive than soluble forms of N but offer controlled release of N with less risk of losses or scorch.

Ammonium N = volatilisation risk has to be converted from NH₄⁺ to NH₂ to be absorbed in the plant req energy from the plant. Risk of scorch. Compatible with other essential nutrients in tank mixes. Can be phytotoxic to plant tissues in high temps and concentrations

Nitrate N = Good uptake by roots, converted in the plant to ammonium and then onto NH₂



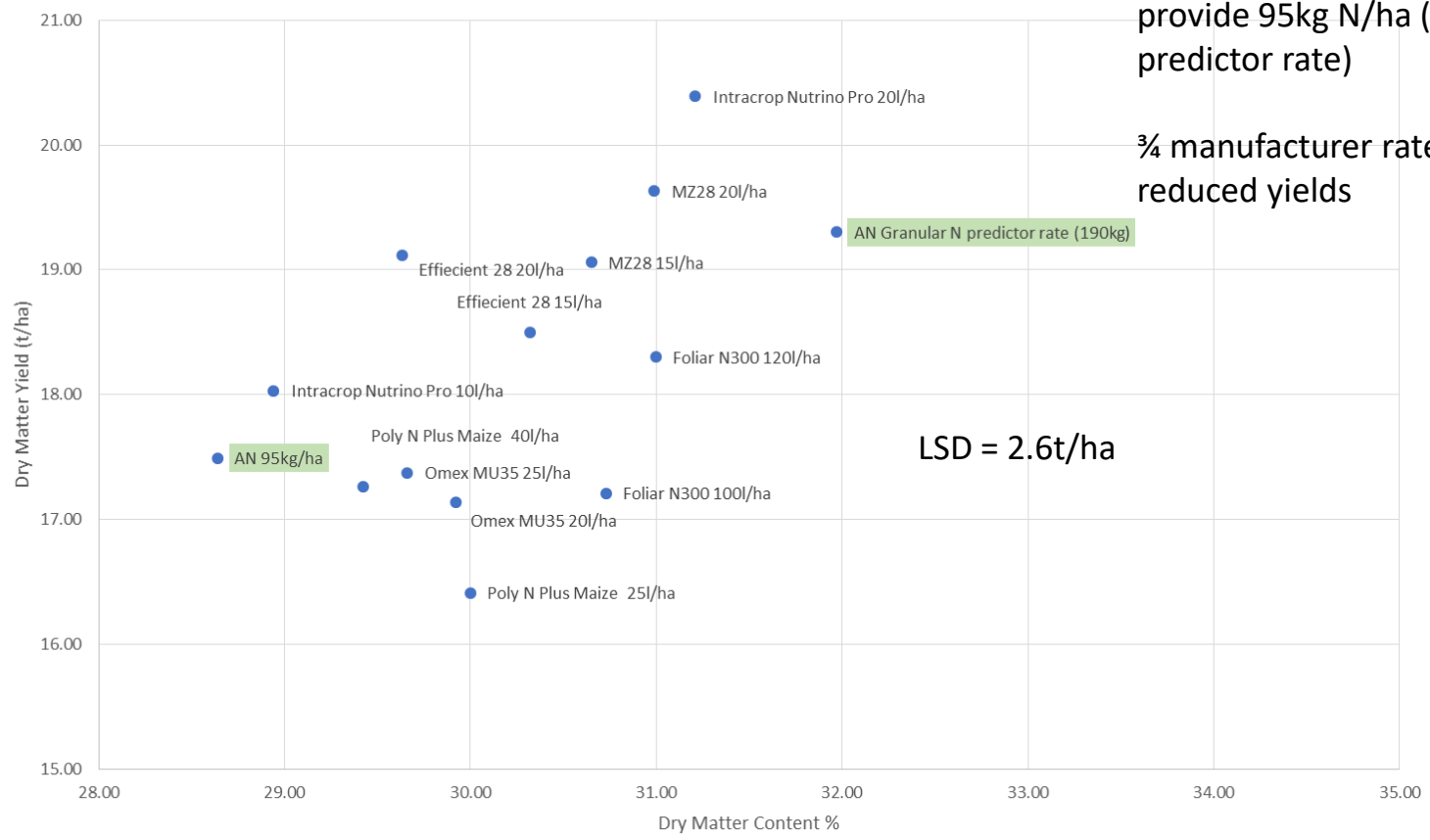
MGA Foliar N Trials 2023 - Harper



MGA Foliar N Trials 2023 - Harper



MGA Harper Foliar Nitrogen Trial 2023
 Drilled 31 May 2023 95 kg N/ha from all sources
 Harvested 12 October 2023
 Thinned to 95,000 plants/ha DM% vs DM Yield



All treatments balanced to provide 95kg N/ha (1/2 MGA N predictor rate)

3/4 manufacturer rate always reduced yields

LSD = 2.6t/ha

MGA Foliar N Trials 2023 - Harper

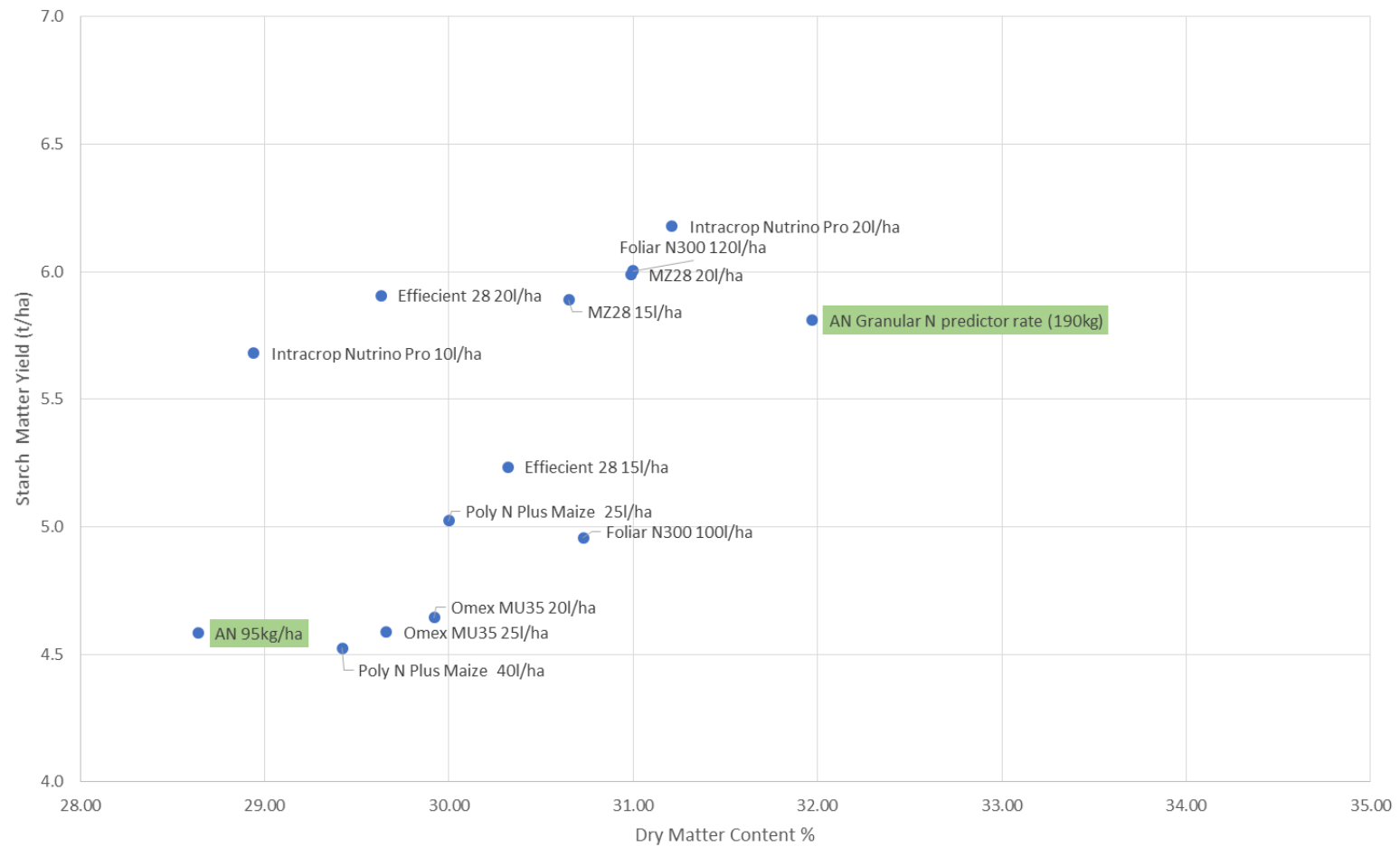


	DM%	DM Yield	Starch %	ME	CWD	Starch Yield	ME Yield
AN Granular N predictor rate (190kg)	31.97	19.30	30.1	10.6	50.9	5.8	205
AN 95kg/ha	28.64	17.49	26.2	10.1	48.1	4.6	177
Intracrop Nutrino Pro 20l/ha	31.21	20.39	30.3	11.1	52.4	6.2	226
Omex MU35 25l/ha	29.66	17.37	26.4	10.2	50.2	4.6	177
Efficient 28 20l/ha	29.63	19.12	30.9	10.3	51.3	5.9	197
MZ28 20l/ha	30.99	19.63	30.5	10.5	50.6	6.0	206
Foliar N300 120l/ha	31.00	18.30	32.8	11.0	52.3	6.0	201
Poly N Plus Maize 40l/ha	29.42	17.26	26.2	9.9	47.2	4.5	171
Intracrop Nutrino Pro 10l/ha	28.94	18.03	31.5	10.8	52.3	5.7	195
Omex MU35 20l/ha	29.92	17.14	27.1	10.1	47.7	4.6	173
Efficient 28 15l/ha	30.32	18.50	28.3	10.2	48.0	5.2	189
MZ28 15l/ha	30.65	19.06	30.9	10.7	50.7	5.9	204
Foliar N300 100l/ha	30.73	17.21	28.8	10.4	49.2	5.0	179
Poly N Plus Maize 25l/ha	30.00	16.41	30.6	10.9	52.2	5.0	179

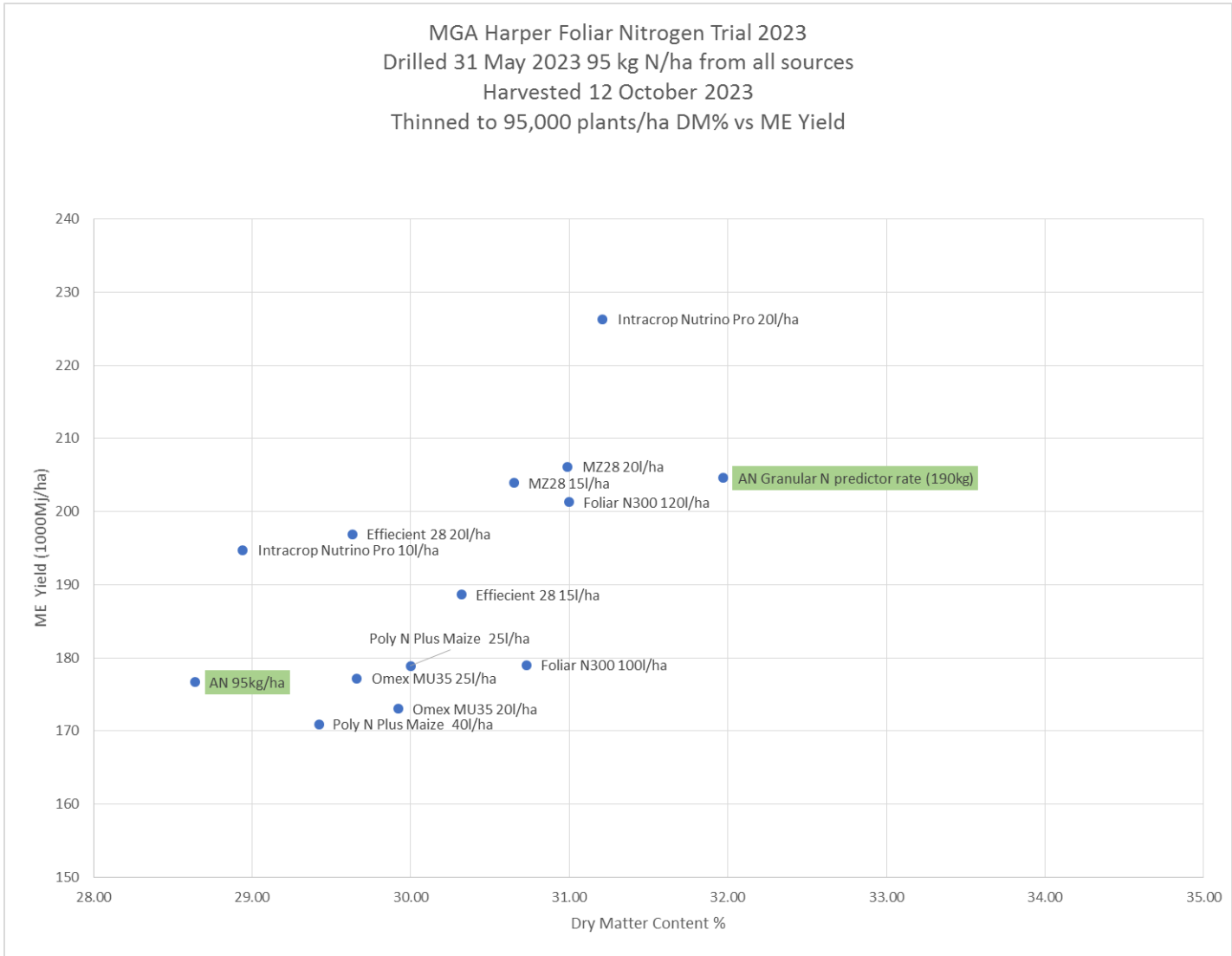
MGA Foliar N Trials 2023 - Harper



MGA Harper Foliar Nitrogen Trial 2023
Drilled 31 May 2023 95 kg N/ha from all sources
Harvested 12 October 2023
Thinned to 95,000 plants/ha DM% vs Starch Yield



MGA Foliar N Trials 2023 - Harper



MGA Foliar N Trials



take home message:

Foliar nitrogen can boost yields and allow management of nutrient supply during the growing season

Scorch free products allow safe application even in higher temperatures

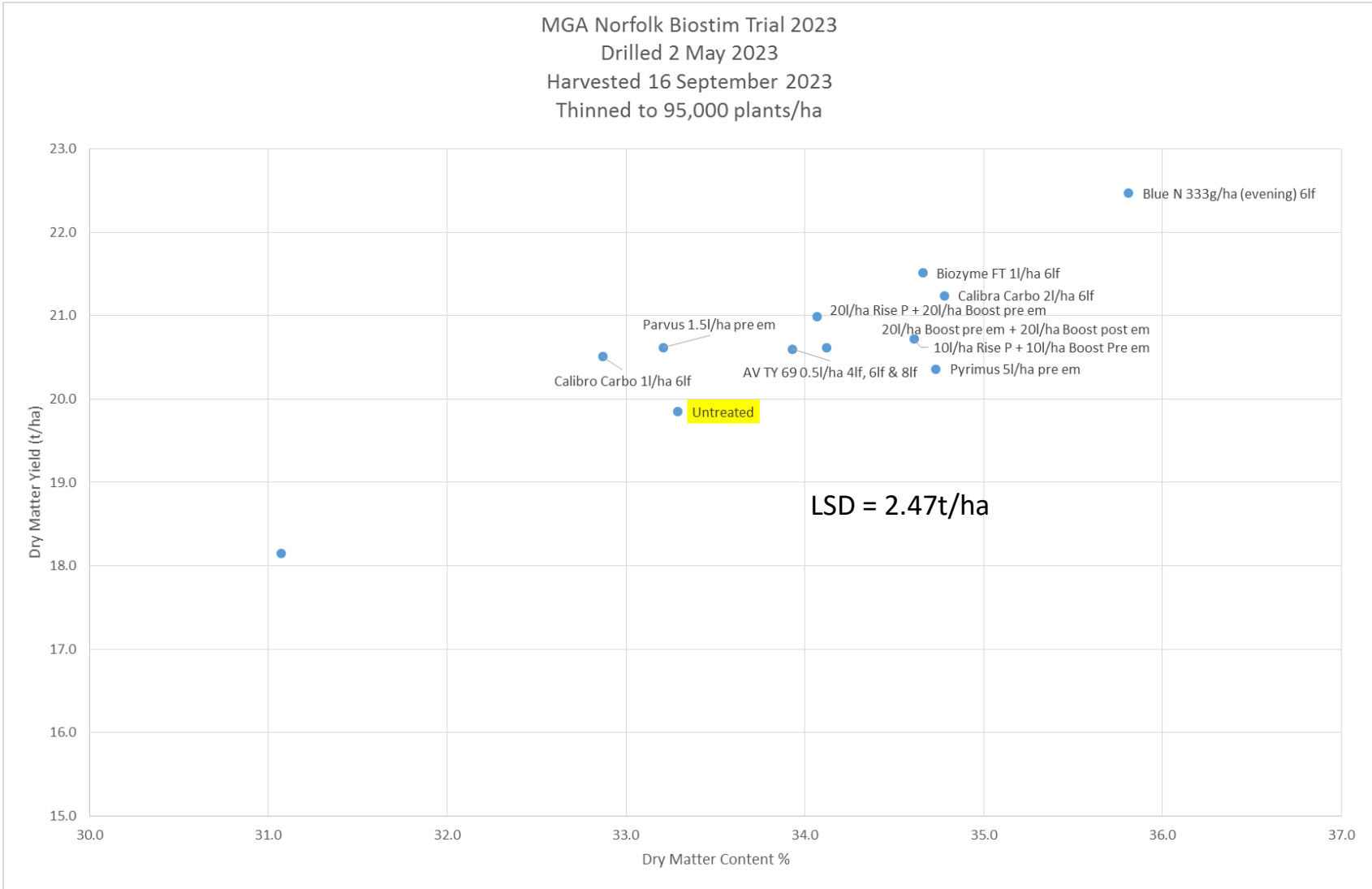
Applying foliar N products at $\frac{1}{2}$ MGA (95kg N) predictor rate gave a DM yield equal to full MGA predictor rate (190kg N)

MGA Bostim Trials 2023 - Norfolk



Treat	Pre em	4 lf	6lf	8lf
1	Untreated			
2	20l/ha Boost pre em	20l/ha Boost Pre em		
3	150gm/ha Rise P + 20l/ha Boost Pre em			
4	10l/ha Rise P + 10l/ha Boost Pre em			
5		AV TY 69 0.5l/ha	AV TY 69 0.5l/ha	AV TY 69 0.5l/ha
6	Parvus 1.5l/ha			
7	Pyrimus 5l/ha			
8			Calibra Carbo 1l/ha	
9			Calibra Carbo 2l/ha	
10			Biozyme FT 1l/ha	
11			Blue N 333g/ha (evening)	

MGA Bostim Trials 2023 - Norfolk



MGA Bostim Trials 2023 - Norfolk



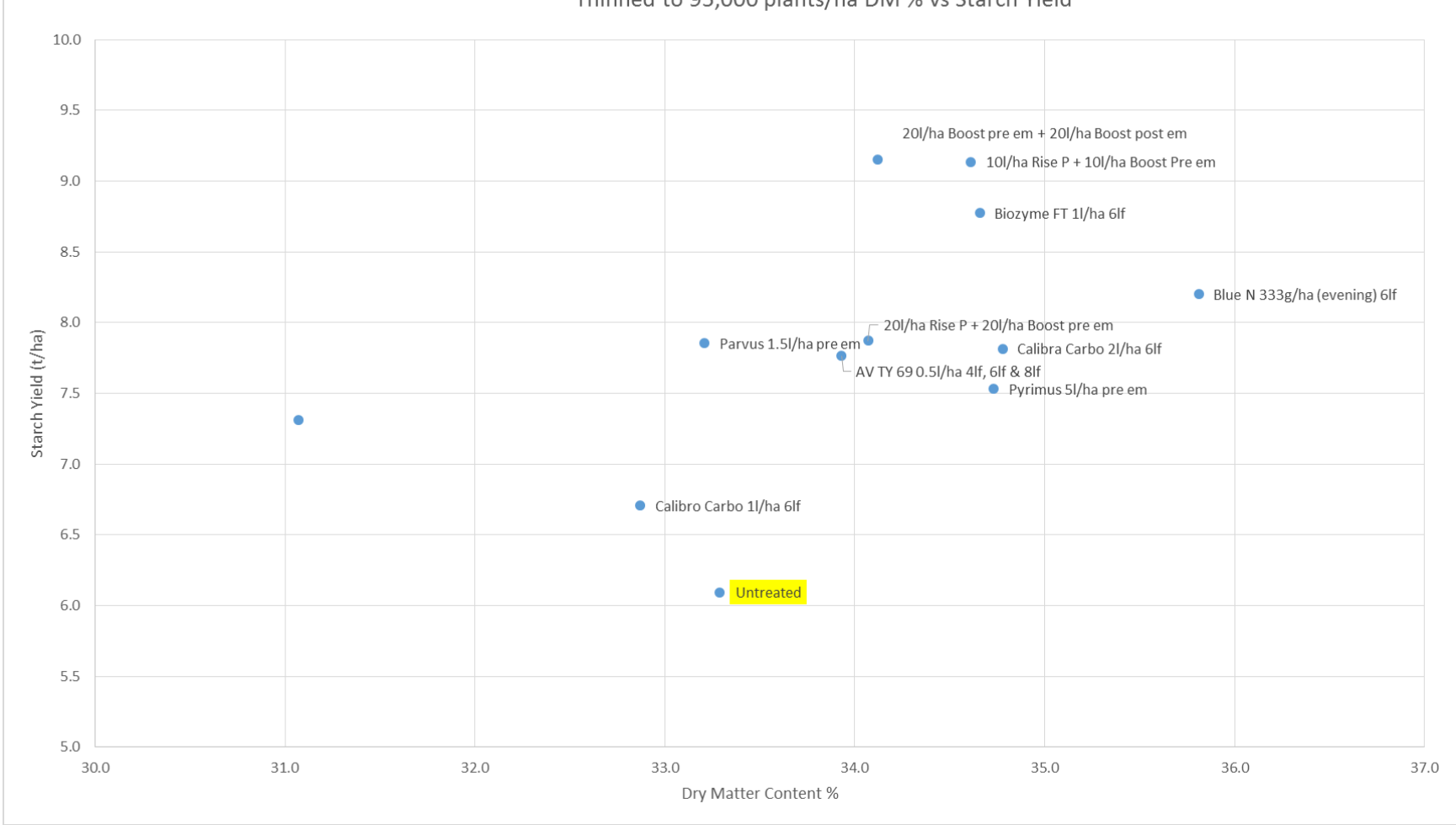
	DM%	DM Yield		Starch %	ME	CWD		Starch Yield	ME Yield
Untreated	33.3	19.9		30.7	10.4	49.4		6.1	206
20l/ha Boost pre em + 20l/ha Boost post em	34.1	20.6		44.4	12.2	56.3		9.2	252
20l/ha Rise P + 20l/ha Boost pre em	34.1	21.0		37.5	11.5	53.8		7.9	241
10l/ha Rise P + 10l/ha Boost Pre em	34.6	20.7		44.1	12.0	54.1		9.1	249
AV TY 69 0.5l/ha 4lf, 6lf & 8lf	33.9	20.6		37.7	11.5	52.8		7.8	237
Parvus 1.5l/ha pre em	33.2	20.6		38.1	11.2	50.2		7.9	231
Pyrimus 5l/ha pre em	34.7	20.4		37.0	11.3	52.2		7.5	230
Calibro Carbo 1l/ha 6lf	32.9	20.5		32.7	10.7	50.1		6.7	219
Calibra Carbo 2l/ha 6lf	34.8	21.2		36.8	11.2	51.6		7.8	238
Biozyme FT 1l/ha 6lf	34.7	21.5		40.8	11.6	52.3		8.8	250
Blue N 333g/ha (evening) 6lf	35.8	22.5		36.5	11.2	51.0		8.2	252

Starch and ME levels improved for many of the Biostim products

MGA Bostim Trials 2023 - Norfolk



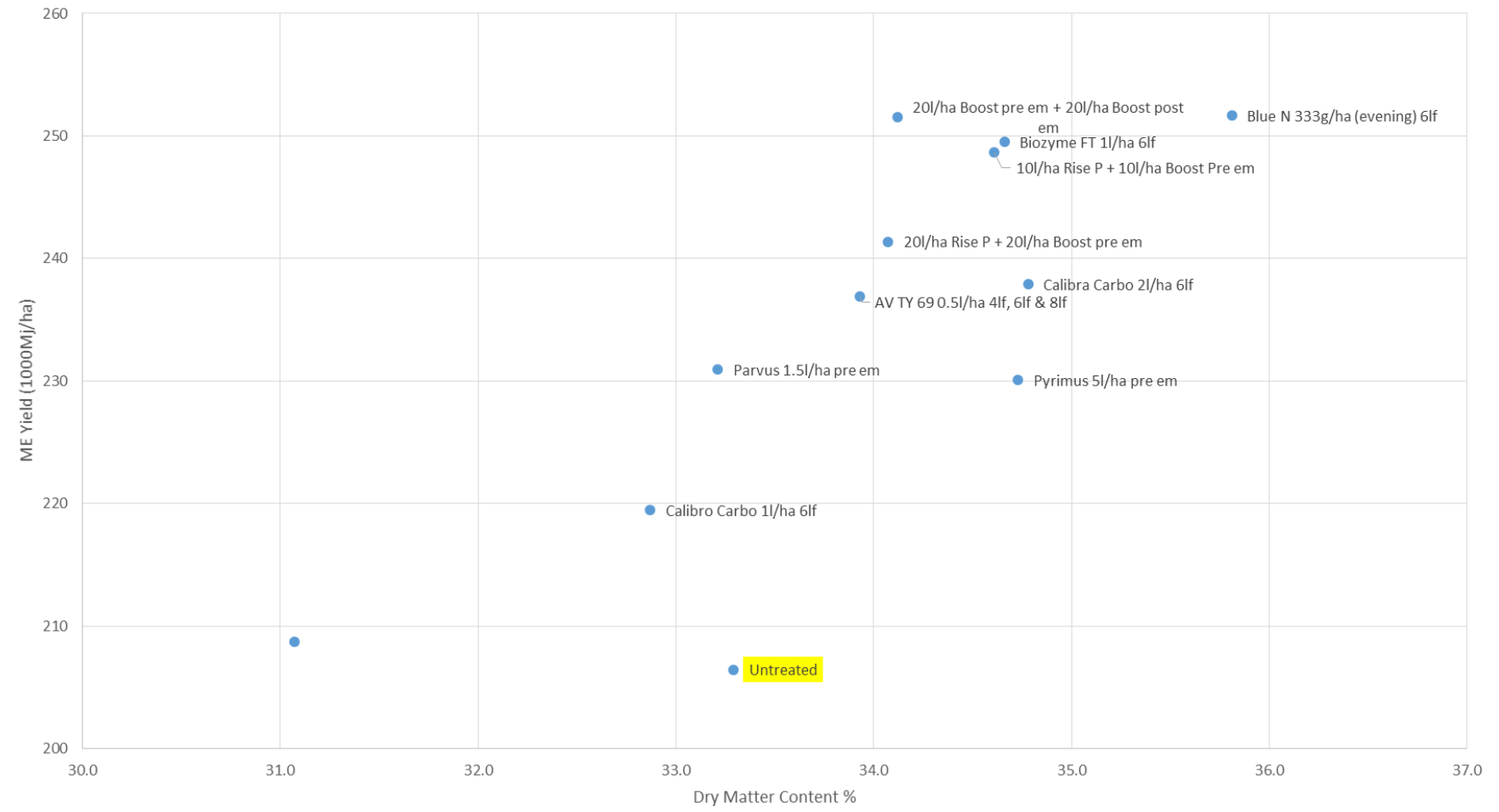
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Drilled 2 May 2023
Harvested 16 September 2023
Thinned to 95,000 plants/ha DM % vs Starch Yield



MGA Foliar N Trials 2023 - Norfolk



MGA Norfolk Biostim Trial 2023
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MGA Plant Biostims 2023 - Harper

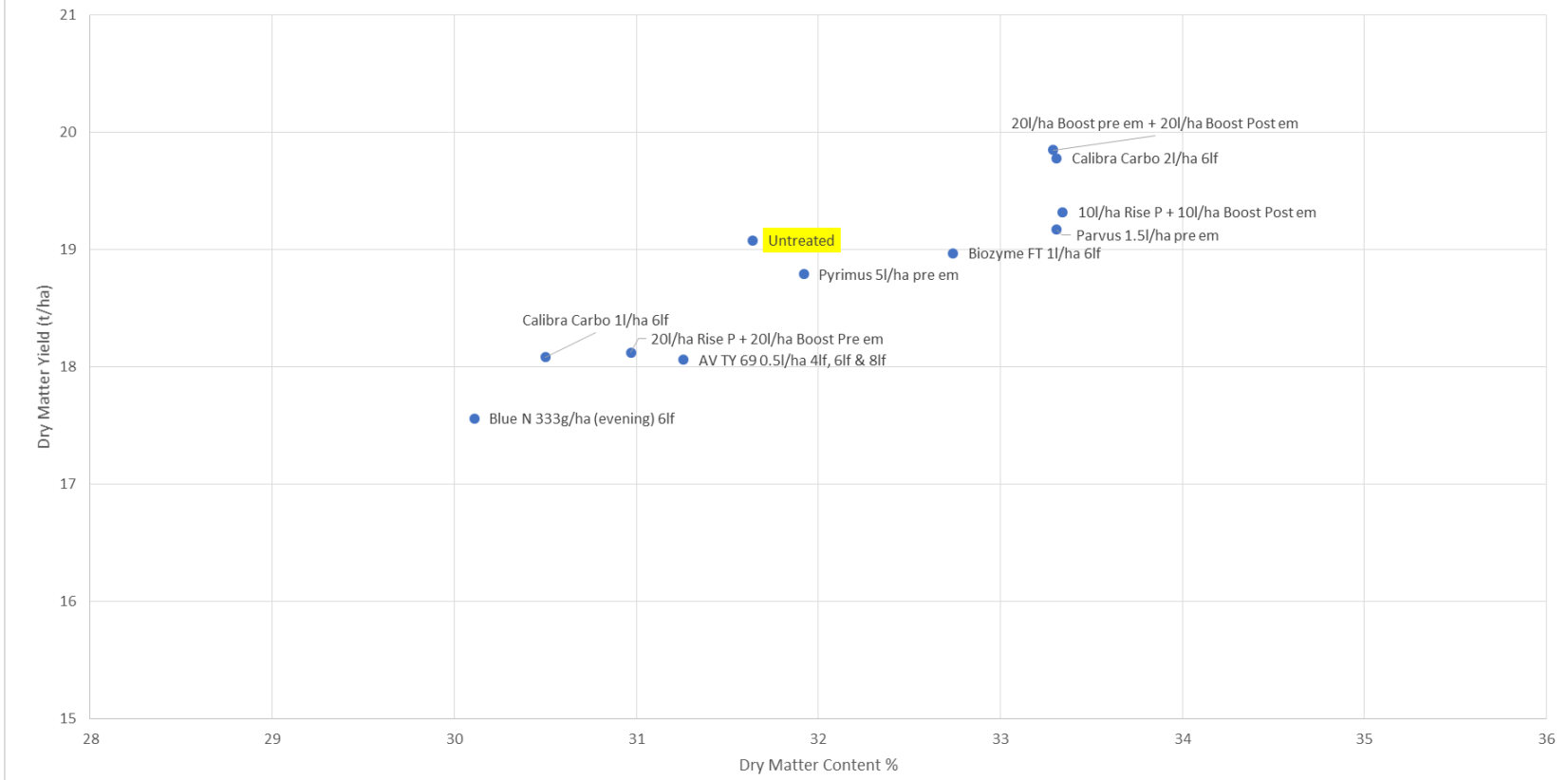


	DM%	DM Yield		Starch %	ME	CWD		Starch Yield	ME Yield
Untreated	31.64	19.08		30.5	9.9	45.8		5.8	189
20l/ha Boost pre em + 20l/ha Boost Post em	33.29	19.85		36.6	11.0	50.1		7.3	218
20l/ha Rise P + 20l/ha Boost Pre em	30.97	18.12		31.1	10.2	48.1		5.6	185
10l/ha Rise P + 10l/ha Boost Post em	33.34	19.32		36.3	11.1	50.5		7.0	214
AV TY 69 0.5l/ha 4lf, 6lf & 8lf	31.26	18.06		29.9	10.0	46.9		5.4	181
Parvus 1.5l/ha pre em	33.31	19.17		31.2	10.4	48.9		6.0	199
Pyrimus 5l/ha pre em	31.92	18.79		39.6	11.4	51.9		7.4	214
Calibra Carbo 1l/ha 6lf	30.5	18.08		31.8	10.4	47.8		5.7	188
Calibra Carbo 2l/ha 6lf	33.31	19.78		36.0	10.8	48.8		7.1	214
Biozyme FT 1l/ha 6lf	32.74	18.97		36.9	11.0	50.2		7.0	209
Blue N 333g/ha (evening) 6lf	30.11	17.56		31.6	9.9	43.7		5.5	174

MGA Plant Biostims 2023 - Harper



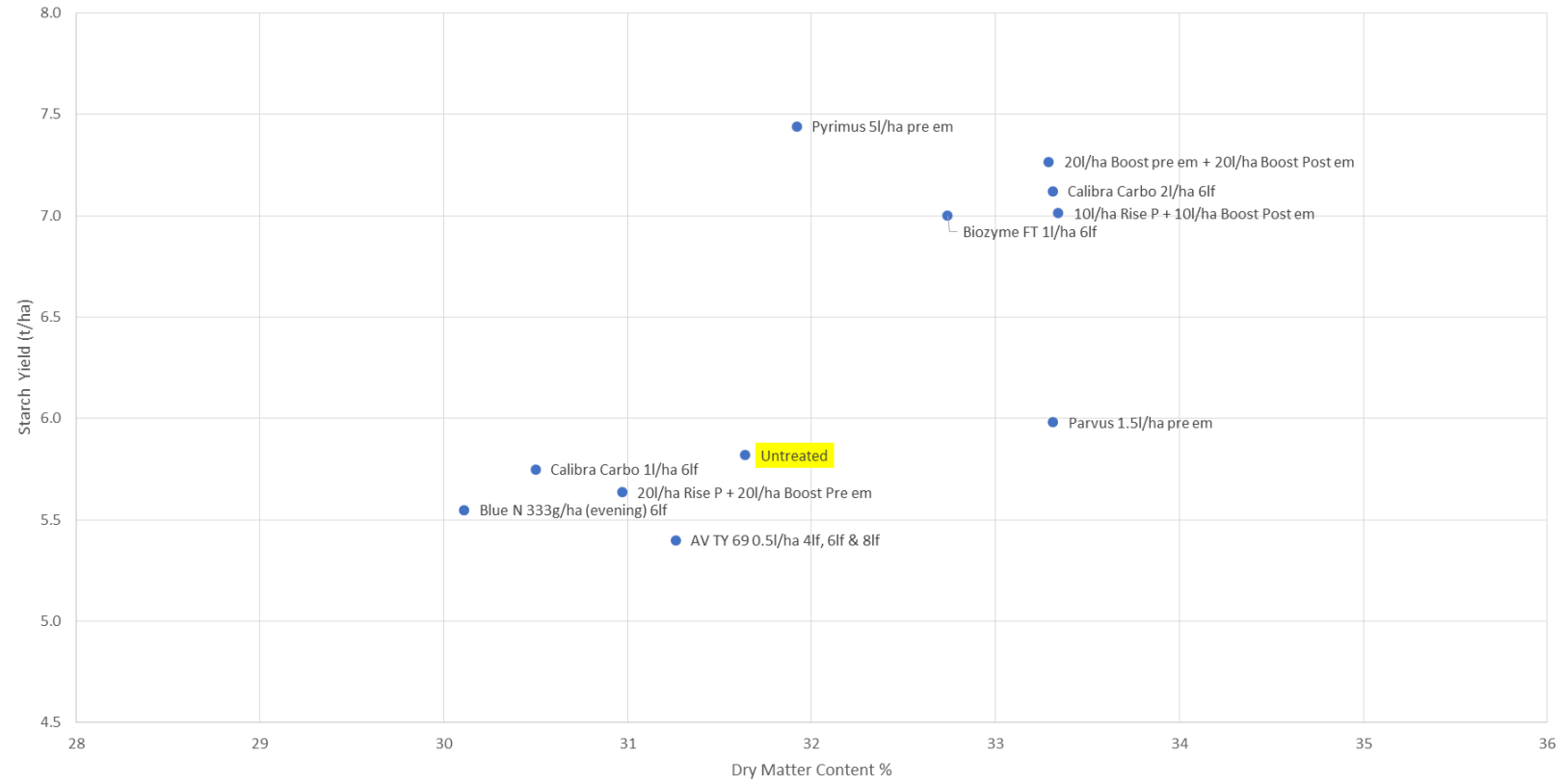
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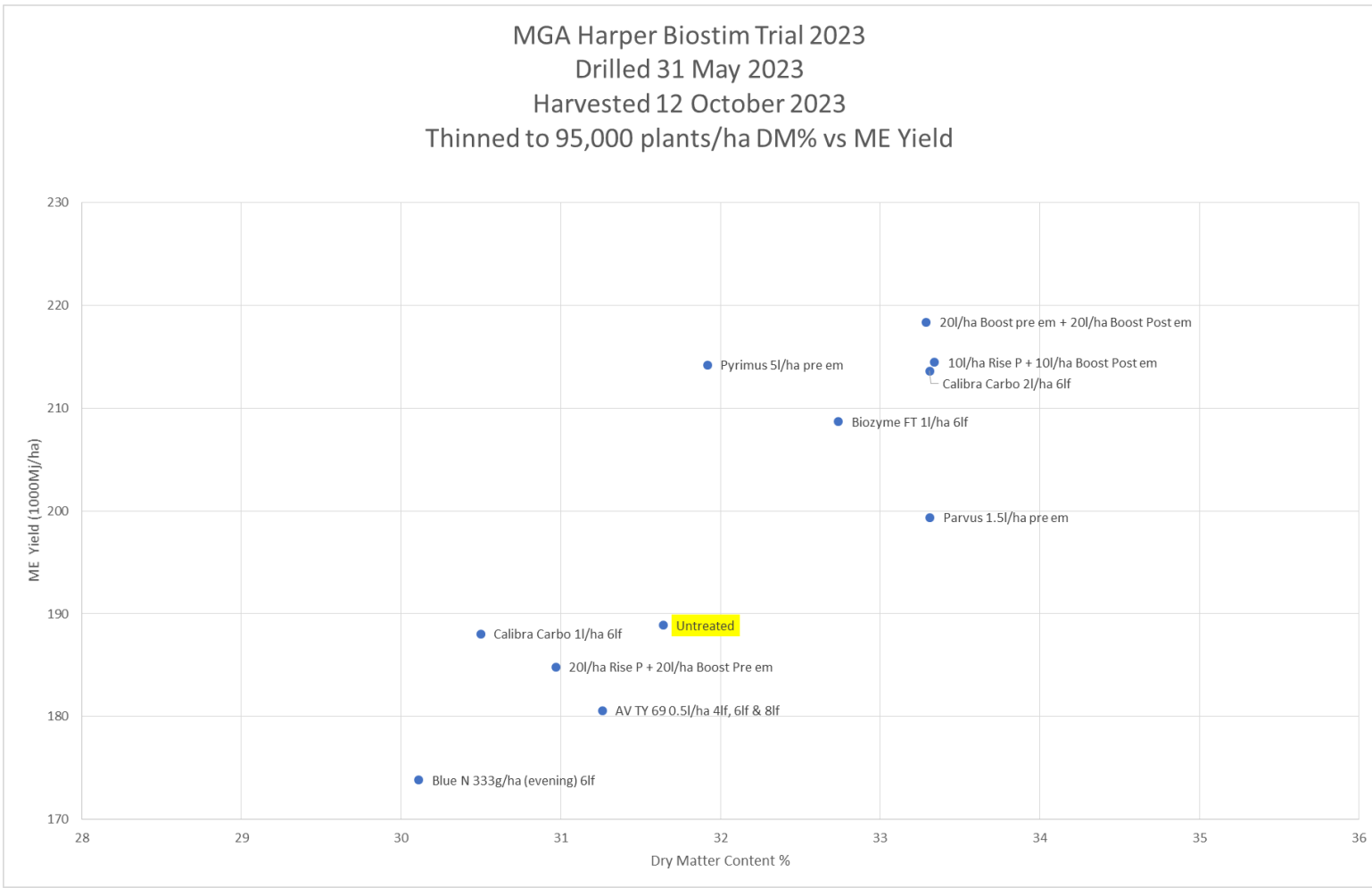
MGA Plant Biostims 2023 - Harper



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Thinned to 95,000 plants/ha DM% vs Starch Yield



MGA Plant Biostims 2023 - Harper





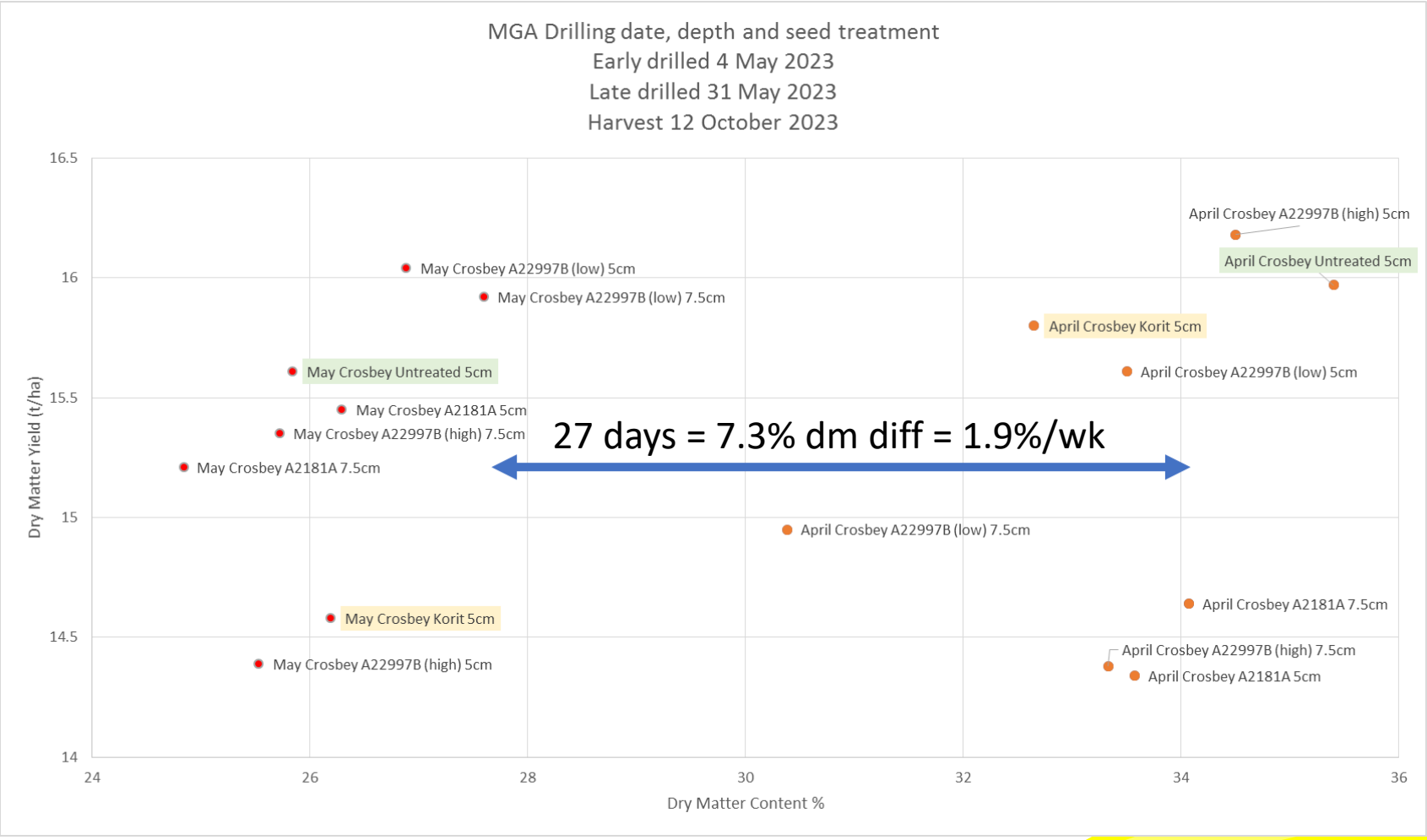
take home message:

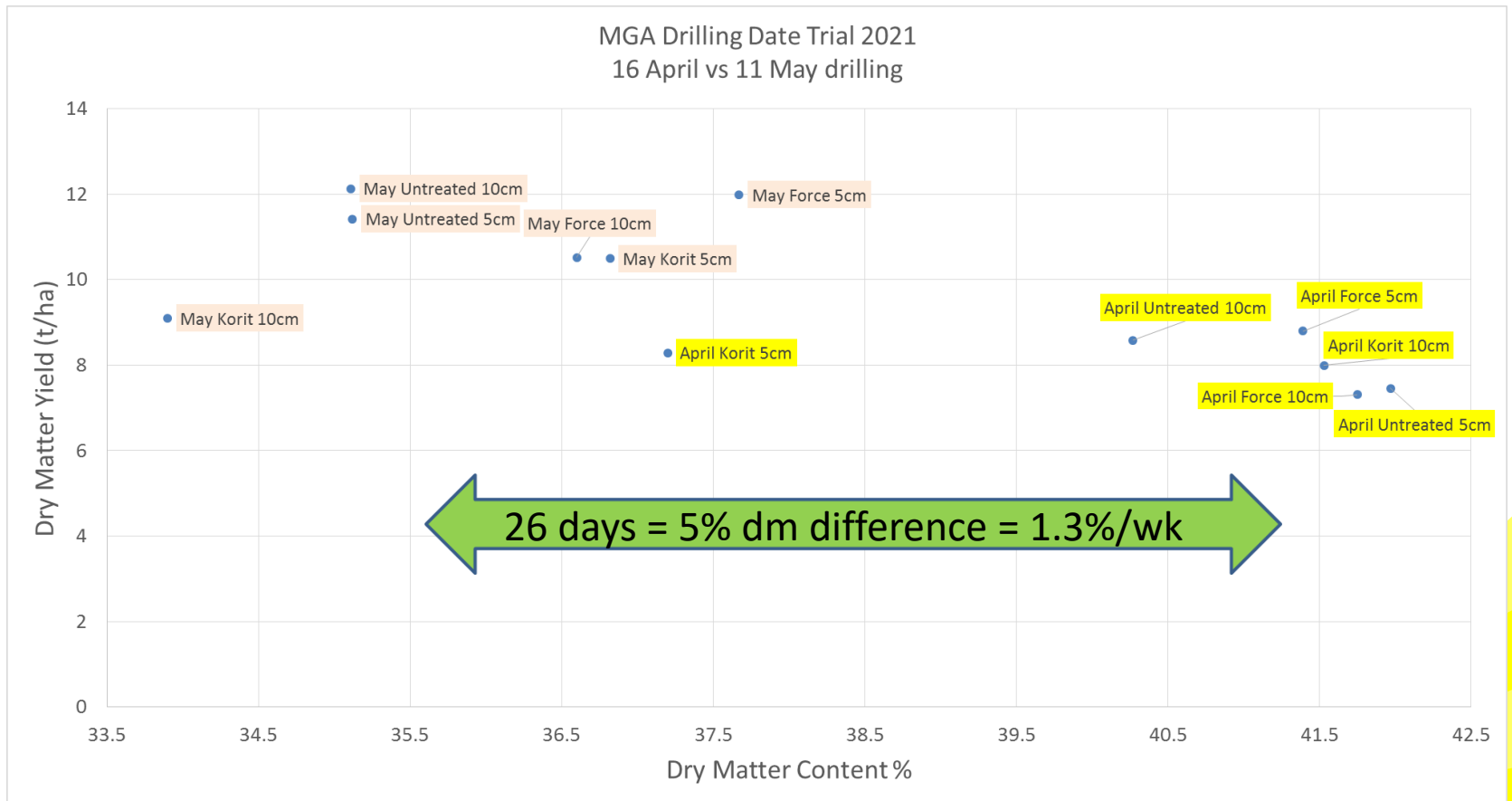
The use of biostim products will rarely show a visual difference in the field

The increased use of tissue testing can allow for targeting of nutrients in short supply during growth, this maybe due to shortfalls in the soil or due to the rapid growth of maize in June.

The silage quality of maize treated with Biostims will often be improved.

MGA Deep drilling trial – Harper 2023





MGA Deep drilling



take home message:

Maize seed needs to be sown into moisture

If drilling in early April beware of going too deep if weather forecast is poor