

Yield and GAI of ‘stay-green’ maize hybrids under different N fertiliser regimes

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Conclusion

Incorporating the ‘stay-green’ trait into hybrids with high green area index in the early vegetative phase offers an opportunity for maize yield improvement.

Introduction

‘Stay-green’ (sgr) hybrids have been selected to maintain a high green leaf area during the post silking development phase when the demand for photosynthate is greatest.

Materials & Methods

- 4 x maize hybrids (‘sgr’ 6 - 9)
- 2 x N fertiliser rates (0 or 270 kg N/ha)



Results

- DM and seed yield similar for hybrids but affected by N (Fig. 1).
- At silking (700 °Cd), ‘sgr’ 7 had more GAI than ‘sgr’ 6, 8 and 9 (Table 1).
- In the absence of N, the ‘stay-green’ trait was not expressed.
- The grains of ‘sgr’ 6 had the highest N at 1.43%.

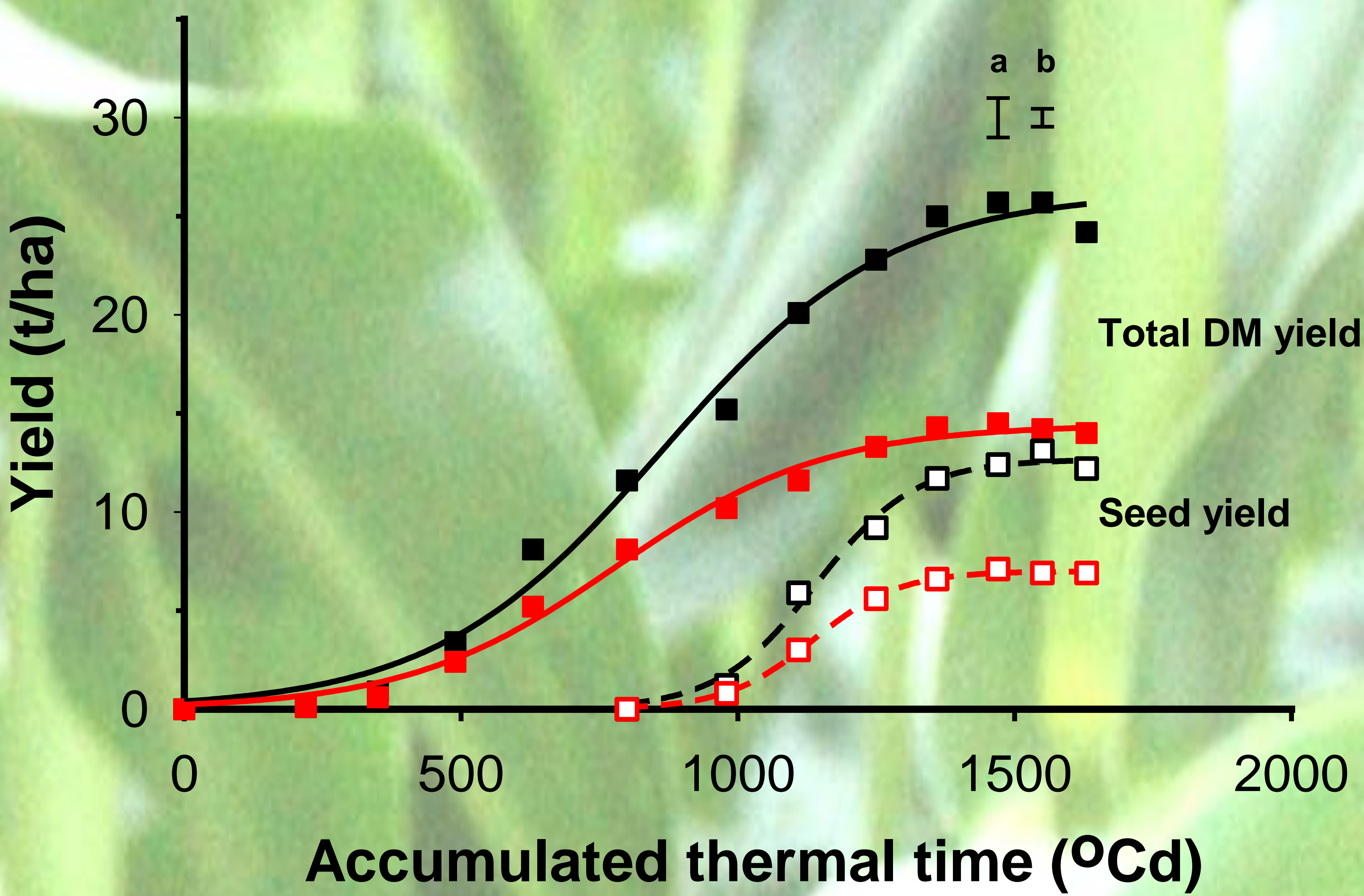


Fig 1: Total DM (—) and seed yield (--) against Tt (°Cd) for maize provided with 0 (■) or 270 kg N/ha (■). Error bars are SEM for (a) TDM and (b) seed yield.

Table 1: Green area index at 700 °Cd and 1320 °Cd for four maize hybrids of different ‘stay-green’ rating grown with 0 or 270 kg N/ha.

		700 °Cd		1320 °Cd	
Hybrid		0	270	0	270
‘P39K38’ (sgr 6)		4.0	5.1	1.9	3.4
‘P38V12’ (sgr 7)		4.4	6.0	1.9	3.8
‘P38F70’ (sgr 8)		3.5	5.1	1.8	3.7
‘P38G43’ (sgr 9)		3.2	5.2	1.7	3.8
Effect	Nitrogen	P<0.001 (LSD = 0.42)		P<0.001 (LSD = 0.22)	
	Hybrid	P<0.01 (LSD = 0.59)			