Effect of time to flowering on yield of rapeseed for drier areas of the South Western Australian cereal belt

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Contrasting rapeseed populations were grown in a low rainfall zone at Merredin, Western Australia (306 mm) as part of research aimed at defining a high yield ideotype for this environment.

Methods

Brassica napus cv. Marnoo, B. campestris ssp. oleifera cv. Jumbuck and an experimental *B. campestris* population, as Chinoli C-40 were assessed in a five replicate randomized complete block design sown on June 18th, 1987.

Table 1. Time to 50% anthesis, dry matter (D. M.) production, seed yield and harvest index of early and late maturing genotypes of rapeseed sown on a light textured duplex soil at Merredin in 1987.

Treat.[1)]	50% anthesis DAS[2)]	D.M.(t ha^{-1})	D.M.prod.after anthesis (t ha^{-1})	Seed yield (t ha^{-1})	H.I.	Pod number per m^2	Seed weight per pod (g)
C	75	1.54	2.67	0.88	0.24	2766	0.031
J	83	1.14	2.15	0.91	0.27	3576	0.027
M	96	2.04	1.33	0.74	0.23	1844	0.043
LSD(0.05) -		0.51	0.84	0.13	0.03	667	0.0007

[1)] J = B. campestris ssp. oleifera cv. Jumbuck; M = B. napus cv. Marnoo; C = B . campestris exp. pop. Chinoli C-40; 2)DAS = days after sowing; Harvest index = seed yield over total D. M. at final harvest.

Results and discussion

Chinoli C-40 flowered one week earlier than Jumbuck and three weeks earlier than Marnoo (Table 1). At anthesis Marnoo produced more dry matter than Chinoli C-40 and Jumbuck (1), but at final harvest the differences were not significant among the genotypes. Normal planting date for this region is in late May, but because the opening rains were late and the season was drier than usual, sowing was late and yields were low as shown by (2). In these conditions, the early flowering appears to confer a definite yield advantage, with higher biological yields and higher harvest indices as in other crops e. g. chickpea (3). More dry matter production after anthesis by Jumbuck and Chinoli C-40 was not reflected proportionately in higher yield, because the ratio of the seed yield to this material was less on Chinoli C-40(33%) and Jumbuck(42%) than Marnoo(56%). Marnoo compensates for late flowering by more efficient partitioning of dry matter into seed after flowering starts i.e. heavier seed weight (2.9 mg) compared with 2.2 mg for Chinoli C-40 and 1.8 mg for Jumbuck.

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