

The Effect of Dry Matter Production Growth Rate, Temperature Rapeseed

Authors : Vadood Mobini, Mansoreh Agazadeh Shahrivar, Parvin Hashemi Gelenjkhanlo, Hassan Vazifah

Abstract : Seed number is a function of dry matter accumulation, crop growth rate (CGR), photothermal quotient (PTQ) and temperature during a critical developmental period, which is around flowering in canola (*Brassica napus* L.). The objective of this experiment was to determine factors such as dry matter, CGR, temperature, and PTQ around flowering which affect seed number. The experiment was conducted at Agricultural Research Station of Gonbad, Iran, between 2005 and 2007. Two cultivars of canola (Hyola401 and RGS003), as subplots were grown at 5 sowing dates as main plots, spaced approximately 30 days apart, to obtain different environmental conditions during flowering. The experiment was arranged in two conditions, i.e., supplemental irrigation and rainfed. Seed number per unit area was a key factor for increasing seed yield. Late sowing dates made the critical period of flowering coincide with high temperatures, decreased days to the flowering, seed number per unit area and seed yield. Seed number was driven by the availability of carbohydrates around flowering. Seed number per unit area was maximized for the cultivars when exposed to the highest PTQ, and to the lowest temperature between the beginning of flowering to that of seed filling. The relationship of seed number with aboveground dry matter, CGR, temperature, and PTQ around flowering, over different environmental conditions, showed these variables were generally applicable to seed number determination.

Keywords : flowering, cultivar, seed filling, environmental conditions, seed yield

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