

Heat and moisture stress in canola

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Canola is a cool season crop, with the highest yields on the Prairies occurring in cool years with abundant precipitation during flowering and seed filling. Heat stress during the bolting and flowering periods can reduce pod fertility, seed number and seed size. Studies have shown that yield reduction due to heat stress is likely the result of changes in the recognition proteins and lipids on either the surface of the stigma or the pollen grain. This results in a failure to communicate between the female and male parts of the plant and reduced seed yield. In the field, temperatures greater than 29.5°C can result in heat stress. This affect is cumulative, meaning that as heat stress increases during the sensitive period, yield reduction also increases. Early studies have shown that yield is reduced by 4% for each heat stress day accumulated from the beginning of bolting to the end of flowering. Growth cabinet screening found that there is genetic variability for heat stress tolerance that could be exploited for future varieties. As climate change results in greater temperature and increased precipitation irregularity, heat and moisture stress tolerance will be traits to select for in plant breeding programs.