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WHICH IS THE LOWEST LATITUDE FOR CANOLA PRODUCTION ?

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Brazil has millions of hectares in tropical areas where soybean and maize are cultivated in the summer, allowing a second crop, in the same year, during the months with lower temperatures. This could reduce the needs for expanding grain production in land currently under pastures and forests. Canola (*Brassica napus* L.), a temperate environment crop, has been developed at latitudes between 35° to 55° and information about the possibility to grow it at latitudes below 24° is decisive for expanding canola production towards the Equator. This study aimed at providing insights about the latitude and altitude limits of adaptation of the available canola hybrids. Data from a network of field trials, at locations in Brazil ranging from the Southernmost state (lat. 30°32'38"S, alt. 432 m) to the Northernmost state (lat. 2°49'11"S, alt. 85 m) along with observations in commercial fields of *B. napus* hybrids, during 8 years, provided the basis for this study. In addition, since 2003, the performance of canola hybrids has been evaluated in experiments and farmers fields at latitudes between 16 and 19°. Commercial production of canola in Central Brazil started in 2004 following promising experimental results. The average yield of eight genotypes at the lat. 18° 29' 59", alt. 815 m was 1,949 kg/ha. Samplings at a farmer's canola field that visually suggested higher yield potential, at the lat. 21° 47' 03", alt. of 442 m, reached 2,664 kg/ha. The lowest latitude at which promising performance was achieved is located in Northeastern Brazil (lat. 6°57'48", alt. 618 m) where the hybrids yielded up to 2,268 kg/ha. However, none of the *B. napus* hybrids produced grain at the latitude 2° 49'11", altitude 85 m, although plant development and flowering was adequate. Likely, the frequent temperatures above 27° C, affected pollen viability. These results suggest that the effect of higher altitude on environmental conditions can compensate for the lower latitudes to an extent that turns canola production agronomically viable with adequate low daylength sensitivity hybrids. The altitude of 600 m can be used as reference to increase research efforts at latitudes starting around 6 degrees, and to expand investigation and commercial production at latitudes as low as 17 degrees. There is much potential for yield improvements since the results were obtained without breeding and selection for these specific growing conditions, and research for adjusting management practices was scarce.