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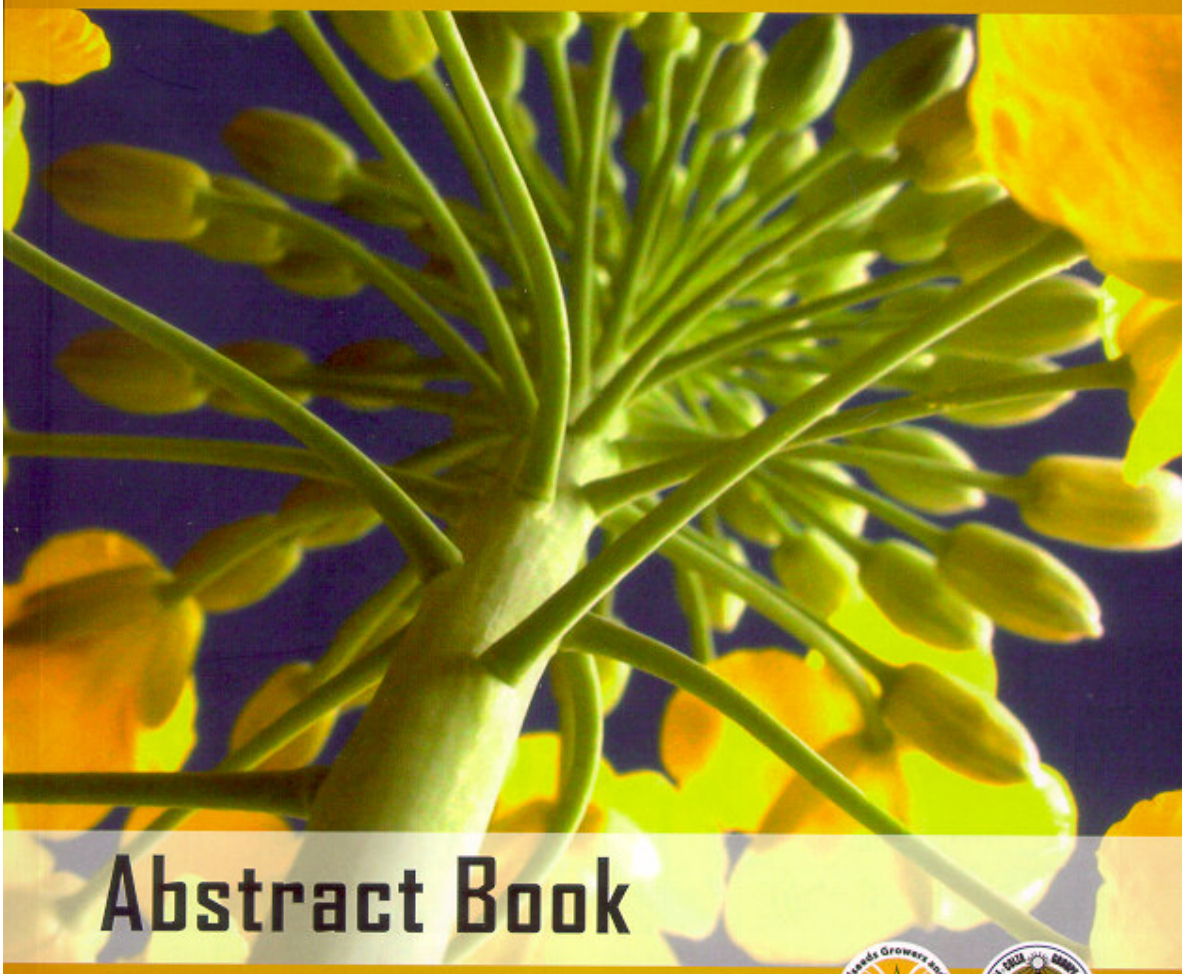

Abstract Book

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Can Canola Be Produced In Tropical Areas?

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Background: Canola production in Brazil is based on spring types of *Brassica napus* L. and reached 45,900 ha in 2010. Yield over the last years averaged 1,656 kg.ha^{-1} (http://www.cnpt.embrapa.br/biblio/do/p_do118.htm). It is grown mainly in the South, at latitudes around 27°, since 1974. Brazil has millions of hectares of land were soybean and maize are produced in the summer which also allow a second crop to grow 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. A large portion of these grain production areas are tropical savanas. However, it has not been answered yet if canola, a crop developed in temperate environments, at latitudes between 35° to 55°, can be produced in tropical areas.

Objectives: Evaluate the viability of producing canola in tropical areas aiming at providing insights about the latitude and altitude limits of adaptation of the available hybrids.

Methods: Data of field experiments along with observations in commercial fields of *B. napus* hybrids, mainly "Hyola" brand, from Australian origin, during the last seven years, provided the basis for this work: a network of field trials, at locations in Brazil ranging from the Southernmost state (at Encruzilhada do Sul, RS, Latitude 30°32'38" S, Altitude 432 m) to the Northernmost state (at Boa Vista, RR, Latitude 2°49'11" S, altitude 85 m). In addition, since 2003, the performance of canola hybrids has been evaluated in experiments and commercial production at latitudes between 16 and 19 degrees.

Results: Commercial production in Central Brazil started in 2004 following promising experimental results such as follows. The average yield of eight genotypes at Chapadao do Céu, GO (Latitude 18° 29' 59" S, altitude 815 m) was 1,949 kg.ha^{-1} (http://www.cnpt.embrapa.br/biblio/co/p_co118_t4.htm). Samplings at a farmer's canola field that visually suggested higher yield potential, at Maracajú, MS (latitude 21° 47' 03", altitude of 442 m), reached 2,664 kg.ha^{-1} (http://www.cnpt.embrapa.br/biblio/bp/p_bp43_5.htm). The lowest latitude at which promising performance was achieved is located in Northeastern Brazil, at Areia, PB (Latitude 6°57'48", altitude 618 m) were the hybrids yielded up to 2,268 kg.ha^{-1} (http://www.cnpt.embrapa.br/biblio/bp/p_bp65.htm).

However, none of the *B. napus* hybrids produced grain at Boa Vista (Latitude 2° 49'11" S, Altitude 85 m) although plant development, and flowering was adequate. Likely, the frequent temperatures above 27° C affected pollen viability.

Conclusion/Application to practice: The effect of higher altitude on environmental conditions can compensate for the lower latitudes to an extent that turns canola production agronomically viable with the "Hyola" hybrids. The results suggested that the altitude of 600 m can be used as reference to increase research and development (R&D) efforts at latitudes starting around 6 degrees, and to expand R&D and commercial production at latitudes as low as 17 degrees. Likely there is much potential for yield improvements since these results were obtained without breeding and selection for these specific growing conditions, and research for adjusting management practices was scarce.

Keywords: *Brazil; Latitude; Altitude; Adaptation; Agronomy; Yield; Savana;*