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ORAL PRESENTATION THEME E

Challenges and opportunities for canola production in Brazil and Paraguay

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Background: Canola is a typical oilseed of latitudes between 35º and 55ºN in temperate environments. Available areas for canola production in Brazil and Paraguay are situated at latitudes below 33ºS, and the aim is to grow this crop during the fall-winter months, in two-crops-a-year grain production systems. Research and production in Brazil started (1974) in the subtropical Southern states, with rainfall above 1,500 mm distributed during all months of the year. In this region, and in Paraguay, canola is subject to high moisture and frosts during the reproductive stages, a period of shorter days than those of most production and cultivar development regions of the world. Frost incidence (around 30 days a year) and severity (up to -10ºC) increase from the lower to the higher altitudes of the production areas (250 to 1,100 m).

Objective: Provide an overview of the challenges and potential for canola production in Brazil and Paraguay.

Results: Production is based only on spring type hybrids of *Brassica napus L.* var. *oleifera*, with resistance to specific blackleg pathogenicity group incited by the fungi *Leptosphaeria maculans* (Desmaz.) Ces. & De Not.. GMO cultivars are not used due to the widespread adoption of Glyphosate-resistant soybean in these rotation systems. Currently, the hybrids developed in Australia are the best available alternative. Long term screening in the target growing regions is required to identify possible sources of germplasm with tolerance to severe frosts, and certain diseases associated with high humidity environments, such as those incited by *Xanthomonas* spp. bacteria, *Sclerotinia* spp., and *Alternaria* spp. fungi. Long term screening in the target growing regions is required to identify more suitable cultivars to the specific requirements of each of the diverse cropping regions. Research and some commercial production has shown that by employing low day-length sensitivity hybrids, canola production is also viable in tropical savannas with altitude above 600 m. Growing area and production peaked at 59,100 ha in Brazil (2011), and at 83,000 ha in Paraguay (2012), with average grain yields around 1,600 kg ha-1. Many farmers achieve grain yields above 2,200 kg ha-1 up to a top yield of 3,200 kg ha-1, and the cropped area is likely to increase. Brazil has 37 million hectares of land under grain production, where soybean and maize are produced in the summer. Canola can become a cropping alternative on about 17 million hectares of under-utilised land in tropical environments, and in subtropical regions were it is possible to grow two crops every year, optimizing investment in land, machinery and other available resources.

Conclusions: Development of canola cultivars and management technologies suitable for subtropical and tropical grain production environments can be decisive for a major expansion of this oilseed´s cropping area to non-traditional regions of the world. Increases in canola production could expand human consumption of its oil in domestic markets and meet part of the requests of companies interested in sourcing large amounts of canola oil for biodiesel production in Europe.