Genetic Diversity Increases Heterosis

The Sprinter *Brassica napus*

Project

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Specialty Seeds & Oils

Cargill is the only company that operates and owns the entire high oleic canola supply chain from seed breeding to finished oil

- IDENTIFYING CUSTOMER TRENDS AND DEMANDS
- DEVELOPING LEADING HYBRIDS THAT MEET THE NEEDS OF OUR GROWER AND OIL CUSTOMERS
- DRIVING INNOVATIONS THAT WILL EXPAND HIGH OLEIC GROWTH IN NEW TO THE WORLD OILS
V12-1, the leading RR hybrid in CPT MSZ

- V12-1 was the leading yield RR hybrid in 2011

- V12-1 tied for No. 1 yield RR hybrid in 2012

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<th>Average Yield (Bu/ac)</th>
<th>VICTORY V12-1</th>
<th>1990 RR</th>
<th>VR 9559 G</th>
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<th>73-75 RR</th>
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Sprinter *Brassica napus*

- winter type *B.napus* with spring growth habit

- Start with winter type *B.napus* cultivars

- Cross with rapid-cycling *B.rapa*, which was bred by Professor Paul H. Williams in Uni. Wisconsin.

- Backcross to winter type *B.napus* and select spring type

- Result is nearly 100% winter type with spring growing habit

- Cargill Patent: US 8,759,608
Agronomic Performance of Sprinter Hybrids in NA Fields
Fatty Acid and Oil Trait Analysis of Sprinter *B. napus* vs V12-1
Genetic Diversity Comparison of Sprinter, Winter x Spring and Spring *B. napus*
Next Generation hybrids
Sprinter platform yield % of V12-1
Summary

• Winter type *B.napus* has been efficiently converted into spring type.

• Oil and agronomic traits (e.g. disease resistance) consistently expressed in Sprinter *B.napus* germplasm and its hybrids.

• Significant yield gain (10-15%) achieved by Sprinter hybrids due to the broader genetic diversity.

• Sprinter hybrids with high oleic genetics and disease resistance are close to launch in western Canada.