

Canola Development at Mycogen Plant Sciences

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Introduction

Canola development at Mycogen Plant Sciences (MPS) is directed towards :

1. Specialty Canola varieties
2. High yielding Canola varieties
3. Insect resistant Canola varieties using Bt genes

MPS is targeting the *Brassica napus* species with focus on spring types for

western Canada, the north-central USA and Scandinavia and winter types for Europe.

1. Specialty Canola varieties

The specialty Canola program at MPS is directed toward the development of high yielding Canola varieties and hybrids capable of producing high stability vegetable oils (high oleic acid and low linolenic acid) for use in food and industrial applications. This program is funded by the Specialty Vegetable Oils division of the Lubrizol Corporation which has a major interest in specialty vegetable oils for use in a range of products.

Mutagenesis has been a very successful tool for generating variability for seed oil composition and now the program is focused on the incorporation of these unique fatty acid compositions into elite spring and winter varieties and hybrids. Micro spore culture is used routinely to produce inbred lines for use as varieties or parents of hybrids. DNA marker technology is used to accelerate the transfer of

the fatty acid traits from spring to winter types. DNA markers are also used to produce DNA fingerprints of the resultant varieties and inbred parent lines for use in proprietary protection and seed purity maintenance. The DNA marker program was initially focused on RFLP technology but now has been almost completely shifted over to AFLP technology.

2. High Yielding Canola varieties

MPS also has an effort directed towards the development of high yielding Canola varieties and hybrids which are a platform for the incorporation of value-added traits such as the specialty oil traits discussed above and Bt insect resistance mentioned below. Microspore culture is a core technology employed for the development of new Canola varieties and inbreds for Canola hybrids.

3. Bt insect resistant varieties

The core business of MPS is directed towards the development of Bt insect resistance in crops. On September 18, 1995, Mycogen Corp., the parent company of MPS, announced that it had signed a letter of intent to enter a major research and development collaboration with Pioneer Hi-Bred International Inc. directed towards the development of Bt insect resistance in a number of major crops including Canola. This collaboration is subject to the completion of definitive agreements between Pioneer and Mycogen.