**Soybeans**

# Breeder to emphasize exports

## It is hoped that Milad Eskandari's work will give Ontario growers a competitive edge

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The new soybean breeder at the Ridgetown Campus of the University of Guelph is looking to give Ontario growers the competitive edge in the export market.

"Our program is using different strategies to improve traits and introduce new ones," Dr. Milad Eskandari said.

"Our goal is to have good varieties in regard to yield and agronomics and at the same time, because more than 70 per cent of our soybeans in Ontario are for export, to make our customers a lot happier."

It's not that a particular trait will necessarily result in a premium for growers, Eskandari said.

However, if Ontario growers can supply soybeans with an enhanced level of nutrition, improved oil and protein content or some other special attribute, international buyers are more likely to come to the province for their needs.

Eskandari and his team have a range of objectives. These include crossing good varieties of different lineages to make incremental agronomic gains.

Milad Eskandari

A longer-term project begins with a process known as mutagenesis. The phenomenon, which involves a change in part of the genome, sometimes occurs in nature but can also be induced.

"This summer, I'm introducing 10,000 seeds (from a single variety) from the University of Minnesota that have been randomly mutated," Eskandari said.

These will be planted out. Some will not germinate or fail to thrive. The remaining plants will be visually evaluated for agronomic performance.

The seed from likely candidates - perhaps 2,000 to 3,000 plants in all - will then be tested for different seed quality traits including oil, protein and fatty acid profile.

It's a bit like looking for a needle in a haystack, Eskandari explained. The aim is to identify a plant - or hopefully a number of plants - with a novel trait that has value for the industry.

The next step is to make a cross with an elite variety in the hope that the trait will be carried forward and eventually become part of a new variety.

One specific goal is develop a variety with "sulfur-containing amino acids" that would make it more valuable for feed purposes.

Breeding for resistance to the soybean cyst nematode is another important part of the program at Ridgetown. Eskandari is utilizing the current form of resistance but since the soil-borne disease organism is showing signs of overcoming the resistance he is also working with second form of resistance.

An old U.S. variety - Hartwig - carries this second form but lacks other desired agronomic characteristics. To introduce the trait to a desired variety initial crosses are made followed by a series of backcrosses.

YET ANOTHER project is focused on the development of food-grade soybeans with high levels of isoflavones.

Currently there are varieties with moderate levels of these organic compounds that are reputed to have health benefits. These can be crossed with the hope of finding new lines with even higher levels.

Eskandari works with longtime technicians Brian Stirling and Dennis Fischer. He takes over a program that was headed by the late Dr. Gary Ablett.

He received Masters of Science at the University of Karaj in Iran. He earned his PhD at Guelph where he worked under another soybean breeder, Dr. Istvan Rajcan.

Eskandari grew up in Iran where his father owned and managed a farming operation.

He remembers as a young boy dreaming of discovering a way to plant corn in the fall so that it would emerge the following spring. It was a child's imagining but perhaps his beginning as a plant breeder.

The area of Iran where he grew up has heavy clay soils. In some years fields went unplanted because of excessive rainfall.

Eskandari and his family reside in London.