

# Breeding Opportunity for Canadian Vegetable Growers



Tomatoes that thrive during a cold Canadian winter and vegetables that taste like home to Canada's growing immigrant population – these are just two of the innovative plant breeding efforts by Dr. Valerio Primomo. As one of Canada's few vegetable breeders, he is on a mission to develop new traits and crops that will benefit Canadian vegetable growers and consumers.

“Most of the vegetable seeds we get are developed in other parts of the world such as California or the Netherlands,” says Primomo, explaining that they are bred specifically for that country's growing conditions and pest pressures. “We want to develop varieties that can grow well in Southern Ontario.”

Primomo is a recent addition to the team at Vineland Research and Innovation Centre in Vineland Station, Ontario. He trained as a molecular breeder at the University of Guelph and worked for six years with canola and soybeans at Pioneer Hi-Bred before turning his focus to vegetable seed breeding.

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Primomo is excited by the potential of his new sector. “The vegetable seed industry is worth about \$4 billion worldwide,” he says. “Here in Canada, the horticulture industry is worth about \$5.4 billion – vegetables account for 30% of that total.”

In his role at Vineland, a world-class centre for horticultural science and innovation, Primomo is building the vegetable breeding program from the ground up. One of his first orders of business is identifying genetic markers for low light tolerant greenhouse tomatoes.

“In the winter months, when it is cold and there is less light, Ontario tomato growers pretty much shut down. During that time, Southern U.S. and Mexico export their tomatoes into Canada and capture high prices. Canadian growers are missing out on this opportunity,” says Primomo. “If we could develop a tomato line that is tolerant to low light (i.e. grows very well under low light conditions), then Canadian growers could profit.” He is collaborating with professor Barry Micallef at the University of Guelph on the project, which is being funded by the Ontario Greenhouse Vegetable Growers.

Primomo also cites reduced input costs as a benefit of this new trait. “In the greenhouse sector, if you develop vegetables that are cold tolerant, growers could save money on heat. Just one degree could save thousands of dollars.”

Investing in plant breeding research means that growers can have access to innovative traits like cold or disease tolerance, but it can also lead to the introduction of new crops. As Canada's ethnic population rises, so does the amount of imported fruits and vegetables. In 2010, these imports reached \$800 million.

“People are looking for vegetables from their homeland. Some of these vegetables are being grown here, but it is a very small amount,” says Primomo, adding there is great potential to increase production in Canada by adapting the seed for Canadian growing conditions. “Using marker technology, we can accelerate the improvement on yield and other quality traits.”

For now, Primomo and his team at Vineland are focused on making selections within four ethnic crops in the highest demand – eggplant, okra, yardlong bean (or Chinese long bean) and amaranth – to find the most adapted lines for production. Helping Canadian growers successfully grow these crops will greatly reduce vegetable imports and provide consumers with fresh, locally grown produce.

As if Primomo's plate isn't full enough, he's also setting his sights on developing new taste profiles for tomatoes and cucumbers, increasing anti-oxidant levels in vegetables and making them more appealing to kids.

*This article is brought to you by the Canadian Seed Trade Association.*