



Case Study

The sweet smell of sweet potato success

How Vineland created a new Canadian industry

Canadians love sweet potatoes — so much so that Canada was the world's third largest importer in 2020 behind only the Netherlands and the United Kingdom. That's now changing with locally grown sweet potatoes, led by Radiance, a new Canadian variety developed by Vineland that is starting to replace imports in grocery stores.

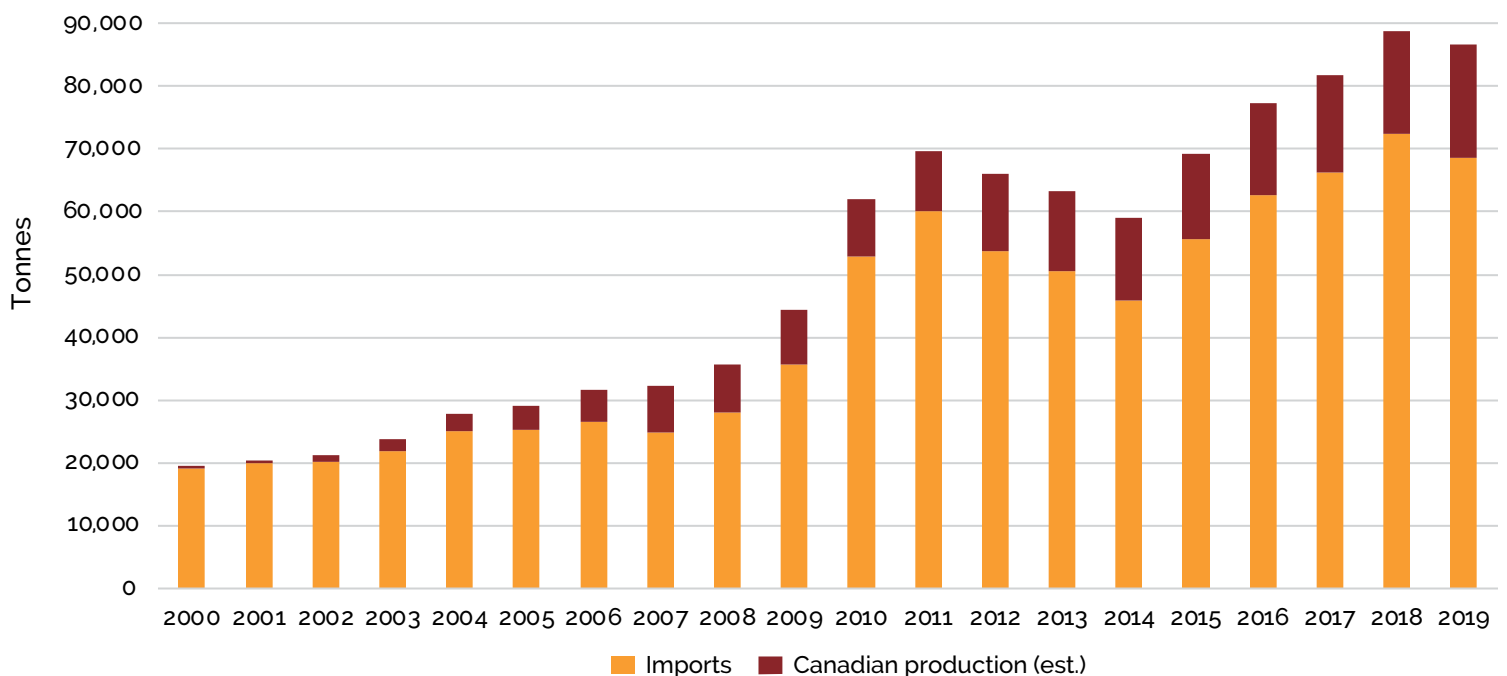
The average Canadian consumption of the antioxidant-rich tuber has been approximately 1.3 kilograms of sweet potatoes per person annually over the last decade. This translates into an opportunity for about 15,000 acres of sweet potato production a year to meet Canadian consumer demand and offset imports.

Canadian sweet potato production has been steadily increasing from only 600 acres of production to over 2,200 acres in 2019, mostly in Ontario's southwestern Norfolk County. Covington, developed in North Carolina and not ideally suited to Canada's cooler, shorter growing season, is the most commonly grown sweet potato variety in Canada.

This identified the need for high-yielding sweet potato varieties suitable to Canadian conditions and mature enough for harvest in September while holding up well in storage. Alongside, is local production of the slips or sweet potato cuttings growers would need to cultivate those new Canadian varieties.

To meet this challenge, Vineland launched a Canadian sweet potato breeding program in 2012.

Growth of sweet potato production in Canada



Vineland delivers Radiance

Developed by Vineland in collaboration with Louisiana State University, Radiance is the first sweet potato variety bred by Canadians for Canadians.

The sweet potato

Red-skinned with deep orange flesh, Radiance checks all the agronomic boxes for sweet potato success in Canada:

- Matures early and stores well
- Can be harvested between 11 and 20 days earlier than Covington and Orleans, two other leading commercial varieties grown in Canada
- Yields at least 20 per cent higher than Covington and Orleans

Vineland consumer research has shown the majority of consumers prefer a bright orange sweet potato that is firm, uniformly coloured and less moist with a sweet caramel-like flavour.

Here too, Radiance hits all the right notes. Vineland's trained sensory panel gave Radiance high marks as being sweeter, stickier and firmer, making it a clear taste and texture winner compared to other commercially available sweet potato varieties.

The supply chain

Vineland realized early on that ensuring Canadian growers have access to locally grown slips would be critical to Radiance's success. Most sweet potato slips have traditionally been produced in the United States, presenting an attractive opportunity to establish a new sweet potato propagation industry in Canada.

This is part of Vineland's value-chain approach to variety development. As a result, the organization is actively pursuing licensing agreements with slip producers to develop a Canadian supply chain for Radiance and work with growers in establishing a domestic slip production industry.



The opportunity

- 1.3 kg: average annual Canadian sweet potato consumption per person
- 15,000 acres: production needed to satisfy annual Canadian sweet potato demand
- \$25,000 per acre gross revenue: sweet potatoes are a high value crop
- 165 million: estimated sweet potato slips needed annually to fully meet Canada's production needs

The challenge

- High-yielding sweet potato varieties suitable to cool climate growing conditions
- Develop a Canadian slip production industry to support growers

The achievement

- Radiance: a high-yielding, high quality sweet potato variety developed in Canada for cool climates with shorter growing seasons; launched in 2019
- Radiance supply chain established to provide slips to growers across Canada

Meet a producer

2021 marked the first time Alberta Sweet Potatoes has grown Radiance slips. Located near Jenner, Alberta, a small town north of Medicine Hat, the business is headed up by livestock and grain farmers Stephanie Lessner and her parents Marjorie and James Larson.

With an increasing interest in sweet potato production on the rise in western Canada, the family decided to fill a niche market by offering growers a local source for sweet potato slips.

"I am excited about the opportunity of supplying growers in British Columbia and the Prairie provinces where sweet potato cultivation is growing and access to slips through traditional suppliers can be a challenge," says Lessner.

The company plans to ramp up production in the coming years to meet expected increasing demand from western Canadian growers.

To date, Vineland has licensed Radiance to five Canadian and one U.S. slip producer, with the goal of building a coast-to-coast network to meet Canadian growers' demand for sweet potato slips estimated at up to 165 million slips annually.

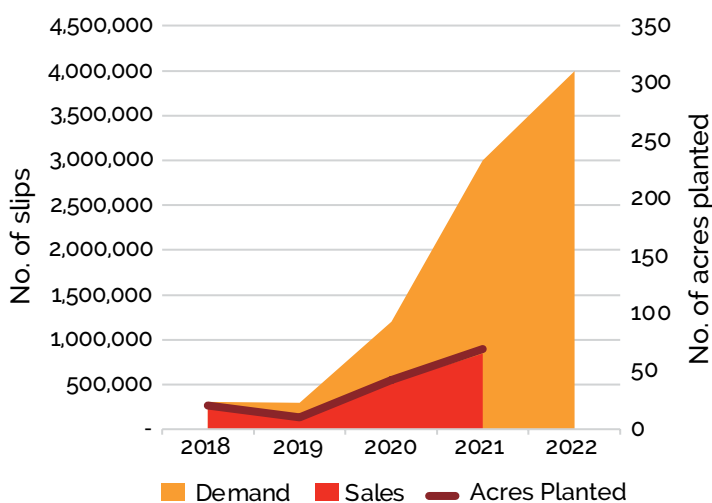
To support slip propagators, Vineland has also developed and published a best production practices guide with agronomic information including cost of production and revenue potential models to grow high quality, high-yielding sweet potato slips in controlled environments.

The impact

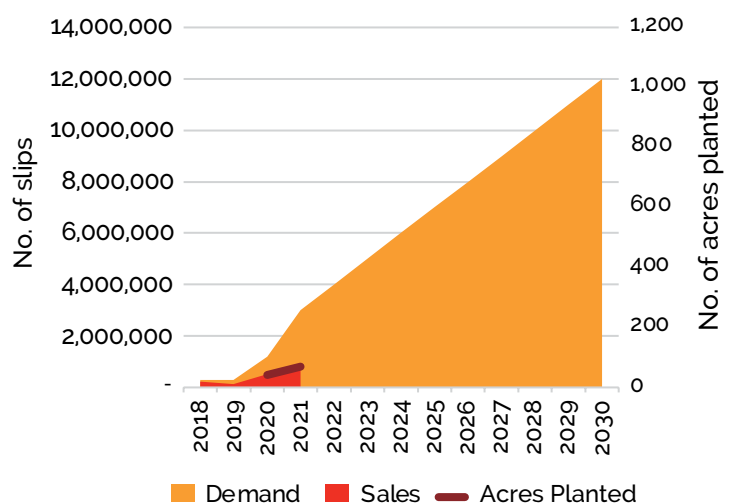
Canada needs approximately 15,000 acres of homegrown sweet potato production to satisfy consumer demand and offset imports. Generating a gross revenue of \$25,000 per acre, Radiance and other made-for-Canada sweet potato varieties from Vineland are a game changer for the Canadian vegetable industry.

This lucrative opportunity to supply Canadian growers with local sweet potato slips is profitable for the slip producer and helps growers avoid slip deterioration due to shipping and border crossing delays from the southern United States.

Radiance demand and sales 2018-2022



Projected demand for Radiance by 2030





Radiance is the result of a successful collaboration between Vineland, Louisiana State University and Canadian growers who contributed to its development by testing, growing and delivering benefits to a wide range of stakeholders, including consumers.

Through the development of Radiance, Vineland has been instrumental in launching a whole new segment of Canadian horticulture and has laid the foundation for a made-in-Canada sweet potato industry that is also drawing international attention.

Going global

Canada is not the only cool climate country where sweet potatoes are popular. Countries in northern Europe, for example, have similar growing conditions and growers are interested in adding sweet potatoes to their production.

That's why, in response to an interest from Europe and beyond, Vineland is now actively exploring opportunities to license its sweet potato varieties for production outside of North America.

Latest update: In Fall 2021, Vineland signed an agreement with Volmary GmbH, an independent German company that has been in the plant breeding and distribution business since 1925, to distribute five Vineland sweet potato varieties in Europe.

Starting in 2022, Volmary will be adding the following Vineland varieties to their existing line up of sweet potatoes sold under the trademarked Erato® brand: Vineland Early Orange, Vineland Compact Orange, Vineland Intense Orange, Vineland Sunrise and Vineland Salmon Orange.



What Vineland delivered

By the numbers

- Launched Radiance in 2019, a new improved commercial sweet potato variety
- Expanded production of Radiance from 10 acres in 2019 to 70 in 2021 — estimated to reach approximately 300 acres in 2022 and 1,000 acres by 2030, offsetting dependence on imports
- 39 Canadian growers now producing Radiance
- Established a slip production industry in Canada (currently serving six provinces) with demand estimated at 165 million slips annually

Grower checklist

- Grower-friendly Canadian sweet potato variety preferred by consumers
- Agronomic and economic guidance for growing Radiance
- Production guide and commercialization support for slip producers entering the business