

Alberta Potatoes

More than
Meets the Eye



One
potato,
two potatoes,
three potatoes, four
...there are new ways to
think about potatoes.



"We're changing the image of the potato," says Tim Darragh, Field Production Manager of The Little Potato Company Ltd.

His proclamation is more than just a marketing pitch. Research is not only changing consumers' perceptions of the potato as more than just another side dish, it's changing the perception of Alberta as being more than just another potato provider. New specialty products are making potatoes easier to cook and rejuvenating them as a convenient household staple.

Research developments have allowed potato acreage to jump by 85.3% since 1996 and production to jump up to an average of 400,000 metric tonnes per year. Today, Statistics Canada reports that 19% of the potatoes produced in Canada now come from Alberta.

It's proved to be win-win-win for producers, processors, and consumers. Research into better disease resistance, in addition to more convenient sizes and attractive colours are

all leading to Alberta-born potatoes and potato products that are more attractive and marketable to the consuming public around the world.

This tremendous growth has attracted a lot of business to the province, including two new potato processing plants: McCain in 1999, and Lamb Weston in 2000. It's also encouraging the expansion of existing facilities, like Old Dutch, Hostess FritoLay, Vauxhall Foods, and Maple Leaf Potatoes (which has been in the province for 35 years). And it's resulted in the emergence of niche processors, like Edmonton's The Little Potato Company Ltd.

Today, more than 10 million pounds of spuds are handled in The Little Potato Company's 30,000 square foot processing facility. Their success is due to their ability to have a steady supply of small-sized potatoes (about one-inch in size) that are sold as a convenience food that can be quickly prepared at home. The packaged, meal-sized potatoes don't have to

be washed or peeled, and can be cooked in only 15 minutes, making them a hit with consumers who had once abandoned larger, slow-cooking potatoes in favour of rice or pasta.

"Traditionally, growing potatoes has always been about trying to produce a big potato," says Darragh. "Essentially, what we've had to focus on is doing the exact opposite. And that's actually pretty difficult."

Using existing varieties, the only way to have a crop of small-sized potatoes was to harvest them early, which sacrificed quality and yield. To combat the problem, The Little Potato Company has worked with Agriculture & Agri-Food Canada (AAFC) researchers to develop population dynamics systems.

"In other words, we've spent a lot of time trying to get the optimum planting density, or number in the hill, so we're basically crowding the potatoes in order to keep the potatoes

themselves small without having small yields," says Darragh.

They've also found ways to incorporate varieties that are more conducive to growing small potatoes. "We've incorporated some old European varieties into the breeding system that have a higher set under the hill," says Darragh. "For instance, one of our current varieties might set 10 under a hill, but a European variety like Bintje sets 20 under the hill."

Research into controlling a potato's size hasn't just benefited niche processors like The Little Potato Company. Michele Kenschuh, Potato Research Agronomist with the Crop Diversification Centre in Brooks, has also been working with the team at AAFC's Lethbridge Research Station to develop a potato suitable to make small wedge-cut home fries, with the peel, for Maple Leaf Potatoes.

Developing new specific-sized varieties for specialty french fries or chipping can take years but Kenschuh is also conducting trials to evaluate a growth regulator for potatoes. "Ideally, some french fry processors want a potato that's about 6 to 10 ounces in size," says Kenschuh.

The regulator is applied and keeps the potato an optimal size, resulting in nice, marketable french fries and chipping potatoes that are neither too small nor too big for the processors to handle.

Research is not only leading to potatoes that make processing more efficient, it's also ensuring a steady supply of quality potatoes year round. Although researchers would love to find a way to control Mother Nature so potatoes could be grown all year, the growing season for potatoes in Alberta is limited to only four short months. A few varieties have been developed that can be harvested in August to spread out the workload, but the vast majority are harvested in September or October.

"There's an old adage that once it's out of the ground, we can't improve it, but we can always help maintain it. So, we're working on developing varieties that store longer and keep their colour and appeal longer, and aren't prone to disease while in storage," says Kenschuh.

Dr. Dermot Lynch of AAFC's Lethbridge Research Centre has been researching the affects of storing processing potatoes at lower temperatures to reduce the risk of post-harvest diseases like fusarium dry rot that can

Did you know?

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There are now more potato acres grown in Western Canada than Eastern Canada. Estimates place potato production in Alberta alone at about 400,000 metric tonnes per year. Much of that is because of research that allows both producers and processing companies to flourish.

Since 1996, potato acreage in Alberta has grown by 85.3%.

Over 50% of potatoes grown in Canada are processed; mostly into french fries. Canada's overall frozen french fry production is over one million tonnes, largely due to expansion in Alberta.

Source: Agriculture and Agri-Food Canada, 2001-2002 Canadian Potato – Situation and Trends



devastate a potato crop while in storage. "We've found that storing processing potatoes at 5 degrees versus 10 degrees reduces pathogen activity," explains Lynch. "If we can lower pathogen activity in this manner, while maintaining processing quality, then we can reduce the risk of storage disease as well as the need for fungicides and chemical sprout inhibitors. This would be a major benefit to both the french fry and chip processing industries."

In addition to finding good storage techniques that prevent disease, research is also underway to develop potatoes that are immune to pests and diseases in the field. This not only alleviates consumer concerns about pesticides, it also alleviates pressure on producers, who spend huge dollars on inputs to grow and maintain healthy potatoes for processing.

Using molecular technology to probe the genetics of a wild Mexican potato species, Lynch and his colleagues have discovered high levels of resistance to late blight disease and the Colorado potato beetle. Late blight is the number one disease in potatoes while the Colorado potato beetle is the number one insect problem of potatoes worldwide. These problems cost Alberta's potato growers roughly \$20 million annually for fungicide and insecticide control, and not having to apply chemical in the first place could lead to a significant cost savings for producers, processors, and consumers all over the world.

With all the research going on in the province, it's no wonder Alberta's processing business is booming. Today, Alberta's potato processing plants process between 500 and 600 thousand tonnes of raw potatoes with an estimated value of between \$350 million and \$400 million annually. And there's a lot of potential for growth on the horizon, thanks to the work of researchers across the province.

"I don't think any of this would be possible without the great producers here," admits Kenschuh. "Alberta is home to an incredibly forward-thinking group of farmers. They're open to new ideas, they listen and they work together. They encourage us, and they put their money where their mouths are. They let us dabble with their crops – their livelihood."

"The next wave could include other value-added properties," says Lynch. "For instance, developing potatoes for diabetics, since diabetics currently can't eat potatoes because the starch breaks down into sugar too quickly."

Other new developments will also likely include more colour pigmentation, potatoes in a rainbow of colours for more visual appeal on store shelves and dinner plates. In fact, The Little Potato Company has already introduced blue potatoes for that visual appeal. "A lot of it will be driven by what consumers want," says Darragh. "It's like a treadmill. You have to keep running to keep standing." **r&d**