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How the B.C. floods revealed the fragility of Canada's food system

Flooding in B.C.'s agricultural heartland touched off a domino of food-supply disruption, leaving bare grocery shelves in some parts of the province, excess food in others

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For the past week, the family-run Lepp Farm Market in Abbotsford, B.C., has been open and fully stocked. Shiny mandarin oranges sit in wooden crates. There's milk and eggs in the coolers. A chalkboard sign announces the soup of the day: cabbage beef borscht. But despite the store's motto, "better when shared," there have been few customers to feed.

Since the devastating floods in the Fraser Valley, the market has been an island, surrounded by flooded roads. The area around it is under emergency order. The Lepp family's vegetable farm in nearby Sumas Prairie is flooded. Their chicken farm is also flooded: All 6,000 birds are dead.

On some days, the store has been accessible only through a gap in the barricades. "Other stores can't get food in," said Charlotte Lepp, co-owner of the market. "We have food, but people can't get to us."

The family's predicament mirrors the larger one that's unfolded across British Columbia: Flooding in its agricultural heartland touched off a domino of disruption along the food supply chain, resulting in bare grocery shelves in some parts of the province, excess food in oth-

ers.

Farmers devastated by B.C. floods return to gut-wrenching scenes

Grocery store shelves in B.C. picked clean as flooding cuts off major transport routes

The past week's events have made the vulnerabilities in B.C.'s food system glaringly obvious - weaknesses that exist not just in B.C., but across the country. And, given the urgent warnings about climate change, Canada's food system is only going to become even more vulnerable.

"As the world changes, said Evan Fraser, director of the Arrell Food Institute at the University of Guelph, "the system has to change."

Even under good weather conditions, the Coquihalla Highway can be terrifying.

The highway that connects B.C.'s Lower Mainland with its Interior - and is a crucial link between the province and the rest of Canada - is marked with steep mountainous climbs and dramatic drops. It's earned its reputation as one of the world's most dangerous roads, and its own reality TV show, Highway Thru Hell.

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Still, thousands of trucks depend on the treacherous route each day to transport critical goods and supplies.

So when flooding shut down a handful of highways last week (including the Coquihalla), it brought to a halt much of the province's supply chain. It also left experts questioning whether the food system is overly reliant on too few roadways.

The road network surrounding the Lower Mainland is particularly fragile, said Simon Fraser University business professor Feyza Sahinyazan, who studies supply chains. "If one or two of the [routes] have been broken, you are completely disconnected from the rest of Canada," she said. "The impact is fully realized when you're going through a disaster."

Part of the problem is geographic reality. "You're literally moving through mountains," said Dave Earle, president of the B.C. Trucking Association. "There's not a lot of options."

Other parts of the country face similar realities. This week, communities in Newfoundland found themselves cut off after a massive storm. Last year, a state of emergency was called there after a snowstorm shut down St. John's and its grocery stores for several days. Heavy flooding in Nova Scotia this week also shut down road access to some communities.

But even cities that aren't geographically isolated can find themselves cut off, Prof. Fraser said.

"How dependent is Toronto on the 401, the QEW and the 407?" he asked. "It wouldn't take too many problems affecting Toronto before there would be a run

on groceries." The fact that so much food travels very long distances - fruits and vegetables from California, for example - only makes the problem worse.

Last week's flooding also put a spotlight on another type of infrastructure critical to agriculture.

Six years ago, B.C.'s forestry ministry released a report on the dike system across the Lower Mainland. The dike in the Sumas area - one that was breached in last week's flood - was found to be "unacceptable."

"Everyone has been saying, 'We've gotta do something about it. We've gotta protect against it'" said Lenore Newman, director of the Food and Agriculture Institute at University of the Fraser Valley.

The same report found 71 per cent of dikes were vulnerable in the event of a flood. Just 4 per cent met provincial standards.

"It's one of many weak points that we're aware of, and we just haven't gotten around to," she said. "That won't fly in the age of climate change. Governments simply can't ignore infrastructure."

Whatever people outside of B.C. imagine about the flood, Ms. Newman said, the reality is much, much worse.

"It's like a giant, flashing sign saying we need to think about infrastructure immediately, and if we don't, very bad things will happen."

And it's not just infrastructure that needs to be climate-resilient, she said. It's the way we produce food, too.

When the rain began to fall last week, Chris Bodnar felt a rush of adrenalin and his moods swinging wildly. "I thought,

'Why is my body doing this to me?' " He realized it was panic - trauma left from the last time his farm had experienced a major flood, 10 years ago.

By the time the rain stopped, his fields were flooded. Still he considers himself lucky, given how little he lost - and how much his friends and neighbours lost. He's extremely reluctant to credit it to anything he did or did not do.

But the reality is that the vast majority of farms in the country don't look much like Mr. Bodnar's Abbotsford farm.

"In order to make the modern food system today, it involved a lot of trying to control nature," said Hannah Wittman, a land and food systems professor at the University of British Columbia. In the Fraser Valley, this meant draining lakes, diverting waterways and intensive farming practices designed to maximize productivity.

Mr. Bodnar's operation is much smaller than other farms, and focused on selling directly to customers through farmers' markets and vegetable box subscriptions. He produces a diverse range of organic vegetables, and plants them strategically, across multiple latitudes.

This approach is key to climate resilience for the future, said Prof. Wittman. Studies have shown that highly diversified farms, with varied landscapes, are more resilient than others to climate change.

Mr. Bodnar has tried to make decisions based on the realities of farming on a floodplain. Sometimes those decisions are about what not to do: On his 50-acre property, he's decided to leave a large forested area and 23 acres of peat bog untouched. The long-term goal, he said,

will be to reclaim the bog as wetlands.

A few of his neighbours have also left forested areas untouched. "There's more of a recognition that in order to have resilient rural areas, you can't farm every square inch," he said. "Some of it needs to be in a natural state."

Experts point to other alternative farming models as resilient too: moving agriculture indoors into greenhouses, building vertical farms and regenerative farming practices aimed at creating healthier soil. But it's the job of governments to incentivize such models, Prof. Fraser said.

"That's not on farmers to do," he said. "The market does not reward them for doing that. The policy structure does not reward them for doing that."

In a statement, federal Agriculture Minister Marie-Claude Bibeau said Ottawa has pledged more than half a billion dollars in new programs focused on sustainable farming, including \$200-million to help farmers adopt practices aimed at improving soil health and reducing greenhouse gas emissions.

"Farmers have made great gains in sustainable agriculture," she said, "but now is the time to double down to improve our resilience to the effects of climate change and reduce greenhouses gas emissions within the sector."

Mr. Bodnar, whose farm is on land leased from a co-op, also knows that most farmers aren't able to make the same choices he has. Proximity to the Lower Mainland has made land prohibitively expensive. Neighbouring farmers who are paying higher rent than he is have to make decisions based on their own financial situations.

"We know there are people going through the flooding right now who are going to be dealing with this for the rest of their lives," Mr. Bodnar said. The immediate focus in the community will be on helping with the cleanup. But the next steps after that will be critical.

"This is generationally defining in some ways," he said. The choices made in the coming months - choices by governments, policy-makers and individual farmers on how to rebuild - must be made with resilience in mind.

"How do we learn from this and do better?"

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