

## **Infectious Questions EP 23: Livestock, farming and One Health considerations for COVID-19**

Shivoan Balakumar: Welcome to Infectious Questions, a public health podcast produced by the National Collaborating Centre for Infectious Diseases. I'm Shivoan Balakumar.

We've covered a range of topics and questions so far in this podcast based on what we think is important to share with public health audiences in Canada, but we want to make sure that we're answering your questions. So, if you have any public health questions on COVID-19, please send them to us at [NCCID@umanitoba.ca](mailto:NCCID@umanitoba.ca). You can also find us on our website at [NCCID.ca](http://NCCID.ca).

On today's episode, the eighth of our series, we'll get to hear a conversation with Dr. Simon Otto, a trained veterinarian and epidemiologist and an assistant professor at the University of Alberta School of Public Health. In this interview, Dr. Otto unpacks some of the public health considerations for livestock and farming in Canada and underscores the importance of a One Health approach in our response to COVID-19. Here is Dr. Simon Otto speaking with NCCID's Margaret Haworth-Brockman.

Dr. Simon Otto: Good morning, my name is Dr. Simon Otto. I'm an assistant professor at the University of Alberta School of Public Health. I'm a veterinarian by training and an epidemiologist. I grew up on a grain farm in Southern Alberta and I grew up with animals. I grew up riding horses and animals on the farm. My extended family, my mom grew up on a beef ranch in Central Alberta. So, those are my roots; that's where I come from.

Margaret H-Brockman: Thank you for joining us today, Dr. Otto. Many people would not think about the risks of effects of COVID-19 on livestock or in farming. Can you tell us a bit about the public health considerations that should be taken into account for ranching and farming?

Dr. Simon Otto: The public health considerations for COVID-19 are a lot broader than people might think about. I've had the opportunity, over the last few days, to speak to both family members and colleagues that are intimately involved in

farming communities, either as producers or sometimes just academics or veterinarians working in those spaces.

It's been really interesting to hear what the impacts have been and how they are approaching their operations. First and foremost, they are very focused on public health protection and protecting themselves, as we all are in this time of social distancing and in some cases, self-isolation and quarantine.

When I spoke to my dad and my brother this morning, their biggest concern in the short-term, as grain farmers, is spring seeding. They run what is a fourth and fifth-generation grain farm in Southern Alberta. They farm 7,000 acres and they do continuous cropping, no [till], so they need to seed 7,000 acres in the next probably 4 to 6 weeks.

Their biggest concern is making sure that they have the staff available to continue to do that work and that they remain healthy. The reality is they do that work. Between the three of them, they have one hired hand, and the two – my dad and my brother – so they are taking quite strict measures in terms of their social distancing to minimize their potential exposure.

For example, my mom and dad live on the farm. They're about 85 kilometres outside the city of Lethbridge. My brother and his family of three kids and his partner live in Lethbridge, so he is the one doing all of the errands around town, whether it be grocery shopping or picking up parts for the farm as well as doing the shopping for my parents. So, they are strictly isolated on the farm to make sure that they're not bringing things in.

Their hired help is seasonal labour. We'll be starting next week, and they have worked with that person to go through a social isolation protocol before he comes onto the farm to make sure that they're not bringing things in. Their biggest concern is, as I said, making sure that they can stay healthy and get the crop in the ground. Because, they can't afford to be delayed by two to four weeks or they'll miss the growing season.

I had a great conversation this morning with a colleague, a researcher, but also a beef producer in her own right, in Saskatchewan. We had a good conversation about what it's like to be a cow/calf producer and a rancher right now. So

typical in Western Canada, this is the time of year when beef producers' cow herds are in calving season, so they're having baby calves. Animals are still close to home because pastures of course aren't able to be grazed yet.

If they need to feed those animals twice a day, they need to watch them very closely. And again, the age dynamic of a lot of family farms in Western Canada or that – you know, there's a good percentage of that population that are in a higher risk category over 65 years of age, and there might be anywhere from one to three people on those farms that are managing large herds.

So again, their ability to social distance to make sure that they're minimizing their exposure so that they're available to take care of their animals is incredibly important.

One of the big challenges for them is that there is very much a – these small rural communities work quite closely together, so if you have a problem on your farm it's not uncommon for you to reach out to a neighbour for help. In times of social distancing it's making that quite challenging for their ability to be able to work together and work with one another so solve problems.

Margaret H-Brockman:

Well thank you. Getting that personal perspective is very, very helpful. Are there specific measures that public health personnel are issuing to livestock farmers and ranchers to prepare for COVID-19 and for the long haul?

Dr. Simon Otto:

I believe that the recommendations from public health are very similar to what we're all experiencing in terms of – you know, social distancing as a general practice, self-isolation when sick with signs that could be COVID-19. I think the trickiest part is, and I'm not sure we've got a good handle on yet, is what to do in a time where there is an instance where a farmer maybe can no longer have an employee on farm if someone's sick. I'm not sure we've got a good handle on how to handle those situations yet.

One of the related pieces are all of the farm/agra businesses that are involved in agricultural production. They have been deemed essential services here in Alberta where I live to be able to maintain things in the supply chain. It's been interesting to hear from family and other colleagues how those businesses have changed their practices in the last ten days.

My brother, who's getting ready for spring seeding, is frequently into different businesses to pick up parts, to pick up agricultural inputs such as fertilizer, herbicide, or in some cases producers going to their veterinarians for medications or other professional consultations. So those businesses have largely moved now that you would phone ahead of time, order your product, pay for it remotely with your credit card, and they would leave it outside for you at the time of pick-up.

Veterinarians are increasingly working towards tele-medicine where they can have online consultations with clients, sending pictures of post-mortem results for example to allow for those decisions to be made remotely. It's been interesting because that's required a shift in veterinary regulatory policy to allow for tele-medicine decisions to be made in a sense, where we can no longer be on farm. That's been an interesting shift as well of how we accommodate that.

But largely, the public health recommendations around worker protection are similar as they are for any business. Essential service in terms of having conversations and policies with your employees about self-isolation when- sick, and dealing with situations where people maybe are coming from travel or have been exposed to people who have been traveling or may have been sick.

I think the other thing that's been interesting is hearing how farmers are an industrious bunch and they think these through, as we all do. They have been – you know, the conversation with family and colleagues has changed from, “Well, we've got to go into town to get our groceries still” to now, “My brother has to grocery-get or bringing it out to the farm to my folks.” It's an interesting perspective to hear how seriously they have to take this to maintain their livelihood.

Margaret H-Brockman:

Finally for my last question, Dr. Otto, the notion of a One Health approach to public health comes up frequently, and is it reasonable or even expected that responses to COVID-19 in Canada adopt a One Health approach?

Dr. Simon Otto:

I think it's imperative. You know, first perspectives when people look at One Health, we tend to get focused a bit sometimes on the infectious disease part so we think about transmission, in this case, a virus potentially between animals, humans and through the environment. And there's been

some interesting work coming out about the potential role that other animal vectors might play for SARS-CoV-2 or COVID-19; there have been reports of two dogs that have tested positive and one cat.

There's a preprint on bioarchive this morning of a group that's done some transmission study and virus replication study in various species, and they've found, initially, that ferrets and cats seem to be susceptible to the virus and can be infected and experience viral replication. They don't know at this time whether they play a role in transmission back to humans.

I think we do recognize that human-to-human transmission is the most common way that that virus can transmit. Their works determine that the susceptibility of dogs to COVID-19 was low but that it could happen. And interestingly, because of agricultural species, they also looked at pigs, chickens and ducks and determined that they were not susceptible to the virus.

So, that's the infectious disease part. I think when we take a bigger look at One Health we realize that it's not just about the biology, it's about the sociology, the mental health aspects, the economic impacts. This is where I feel strongly that a One Health approach is so important to address COVID-19. How are we going to assess the mental health aspects and the negative implications of quarantine and self-isolation, social distancing, the economic impacts?

I teach a course in One Health, and we are actively trying to get students to think about this bigger picture in terms of the impacts of disease environmental pieces. It's quite important.

Related to this, what's been interesting in the discussions on the farm agricultural side, or disruptions to supply chains in speaking with colleagues and family members, one of the big concerns in the short-term is making sure they have access to the inputs they need for their operations.

For a grain farm for example, my brother and dad have been actively trying to get all of their inputs in place for spring seeding. Supplies of seed, supplies of fertilizer, supplies of herbicide, supplies of diesel fuel, making sure they have those things at hand to get through spring seeding.

Right now, there have not been disruptions in the supply chain for inputs but they are concerned about what could happen over the next four to six weeks. Either it'd be supplies coming across the border from the U.S. or other sources, or simply the ability to have people who deliver come to your farm. Are they going to be able to transport things that you need or are you going to be able to pick them up?

The longer-term piece that is becoming a concern will be about the downstream effects. So are they going to be able to ship products, whether it's shipping animals from your farm that are headed for processing or perhaps the grain shipments as we get into the summer and fall for harvest?

I was speaking with my dad this morning. He felt that one of the biggest longer-term threats will be the breakdown of international trade, the ability to ship grain through the ports in Vancouver; for example the fact that we ship livestock across the border from Canada to the U.S. in some cases for processing. I think the bigger picture impacts of these things will become important, and that does require that One Health lens to look at these big-picture pieces.

Margaret H-Brockman:

I have one more question actually coming out of that, which would be are these considerations, especially the One Health aspects that you've been mentioning, already integrated in the ongoing public health discussions in provinces and territories across Canada?

Dr. Simon Otto:

From what I can see and what I have read, I think that there are people in the industry groups [that] are starting to raise these concerns. But, I'm not certain that they are first, front and centre in the public health discussions, and for good reason. I think the initial public health response is appropriately focused on the acute scale-up of the pandemic, how we respond, how we make sure we have adequate healthcare resources, flattening the curve, social distancing. Those things are important.

It will be increasingly important with emergency response about the long-term planning and the recovery planning. I have been trained and have experience working in incident emergency management, and I've been trained in incident command systems. We are trained in those pieces, especially from a planning perspective, that we need to think about the longer-term impacts.

I've been fortunate to start interacting a bit with colleagues in public health on the emergency management to offer some of the experiences I've had in that setting, and to encourage them to start looking at bigger-picture pieces about planning and impacts.

It's challenging for governments at municipal, provincial and federal levels to be able to do that because there's so many competing interests and resources. But, I have confidence that there are people in the different sectors that are messaging up to those levels, but I also realize that they are in an area of competing resources and competing things for their attention. So, I think it's a matter of that the messaging needs to head up to the right levels to make sure that they realize the importance of it and gets put at the appropriate place on the priority list. I also acknowledge it's a big challenge given limited resources.

Shivoan Balakumar:

That was Margaret Haworth-Brockman's phone interview with Sr. Simon Otto. If you have other public health questions on COVID-19, please reach out to us at [NCCID@umanitoba.ca](mailto:NCCID@umanitoba.ca). Production of this podcast has been made possible through financial contribution from the Public Health Agency of Canada but the views expressed here do not necessarily represent those of the agency.

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