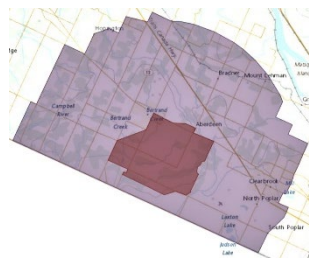
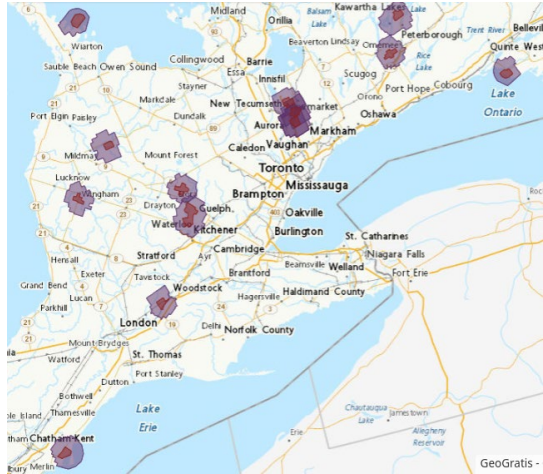
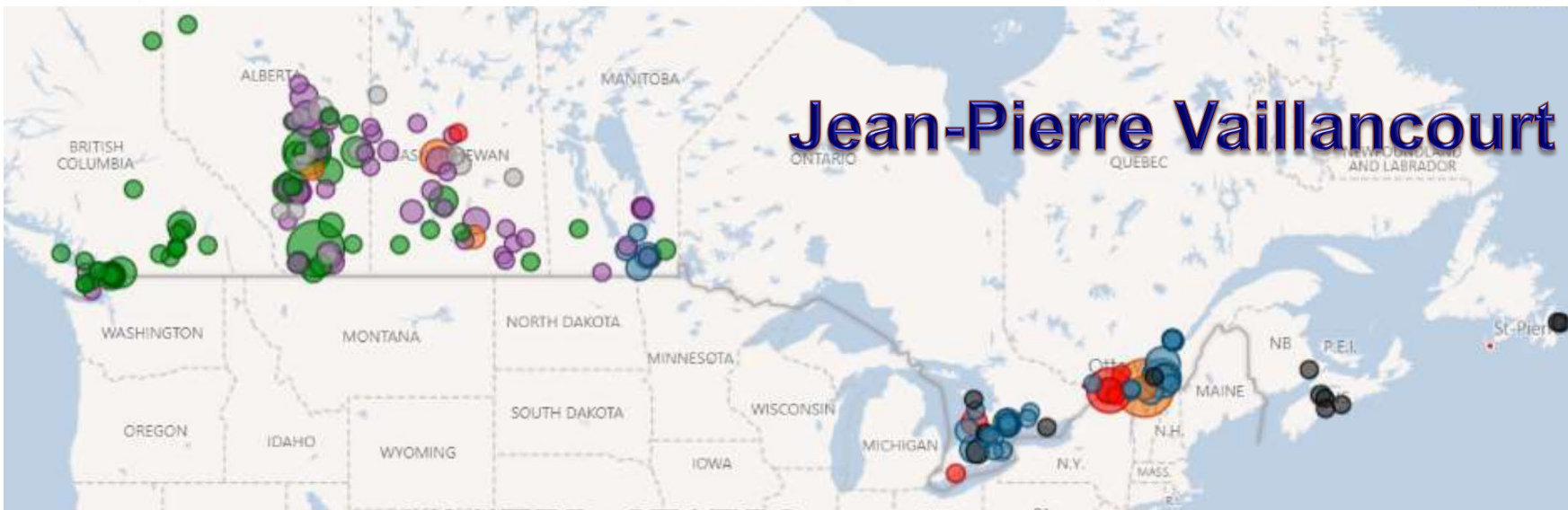
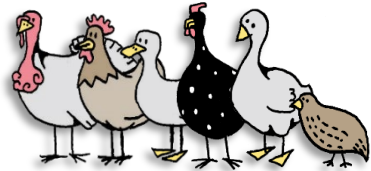
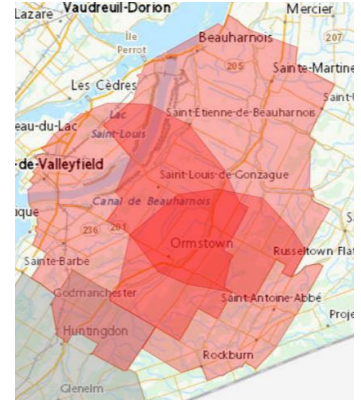
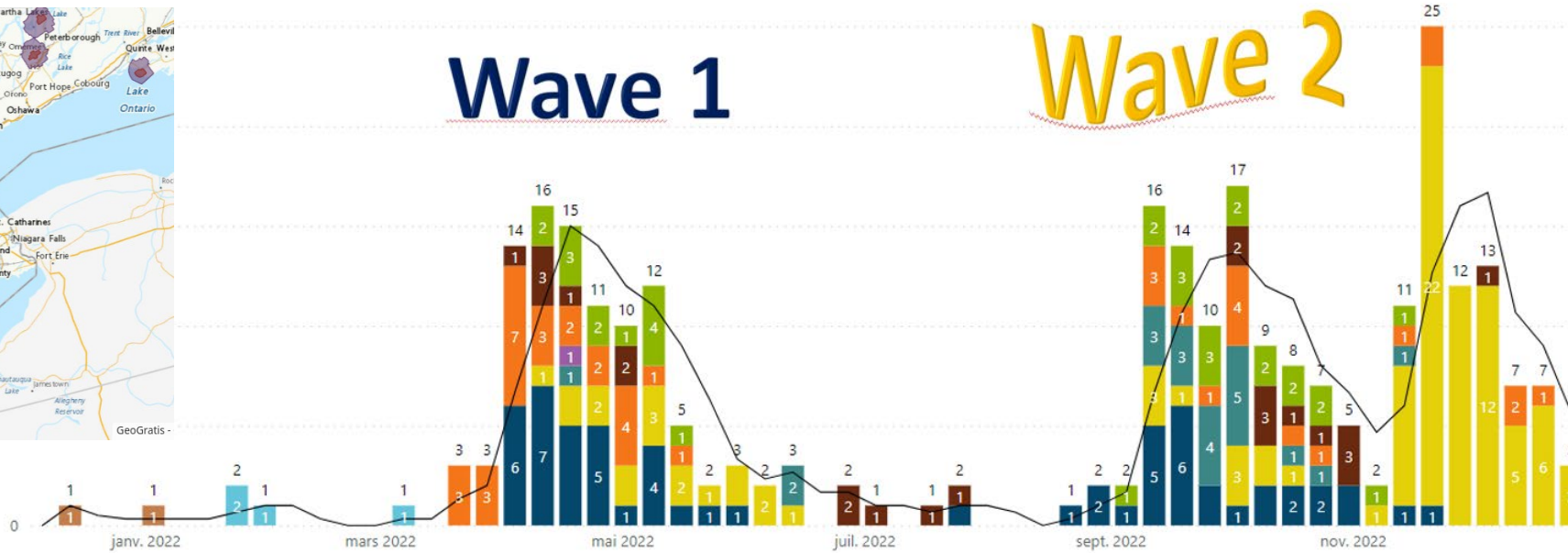


Biosecurity: What else can be done?

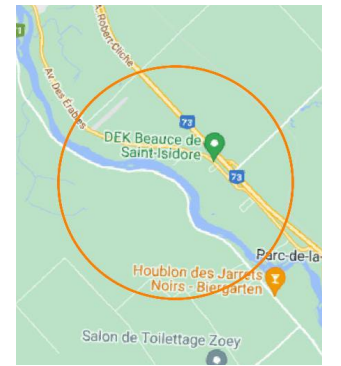


Wave 1

Wave 2



Jean-Pierre Vaillancourt



Conference Report

Mitigating the Impact of Emerging Animal Infectious Disease Threats: First Emerging Animal Infectious Diseases Conference (EAIDC) Report

Suresh V. Kuchipudi ^{1,2,*}, Deanna Behring ³, Ruth Nissly ^{1,2}, Shubhada K. Chothe ^{1,2}, Abhinav Gontu ^{1,2}, Abirami Ravichandran ^{1,2} and Ty Butler ³

Biosecurity Fatigue

Biosecurity Fatigue

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Jim Knisley November 30, 1999

Biosecurity Fatigue

Jim Knisley November 30, 1999

Features

Barn Management

Production

A key to better biosecurity might be to avoid using the word “bio-security,” according to J.P Vaillancourt of the University of Montreal.

Poultry farmers have heard so much about biosecurity in recent years that they tend to turn off at the

Editors' Picks

- ▶ Webinar: The Poultry and Egg On-Farm Investment Program

Digital Edition

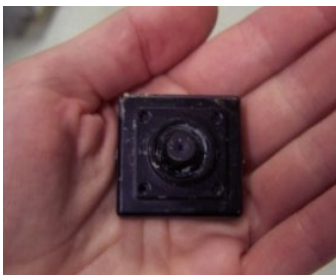
- ▶ View Digital Edition



Biosecurity compliance

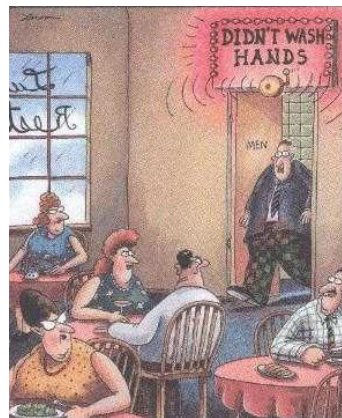
Description of 44 biosecurity errors while entering and exiting poultry barns based on video surveillance in Quebec, Canada

Manon Racicot^{a,b,*}, Daniel Venne^c, André Durivage^d, Jean-Pierre Vaillancourt^a



8 farms
883 visits
102 individuals

Human nature



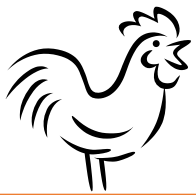
Compliance (%)



We have Issues...



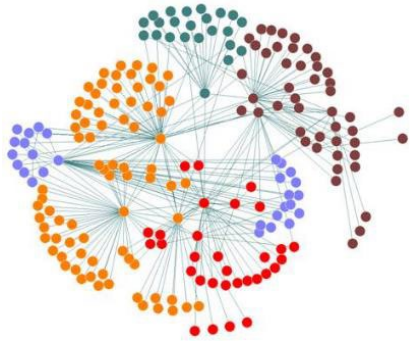
Category	Risk	Reduce	Separate	Regional issue	Human issue
Location	Multi-species site				
	Size of farm				
	Access outdoor				
	Proximity to neighbor/road				
	Size of neighbor's poultry farm				
	Type of neighbor's poultry prod.				
	Regional density				
	Aerosols				
	Insects/vectors				
	Wildlife (e.g., waterfowl, rodents)				
Poultry	Type of poultry production				
	Origin of flock				
	New arrivals (e.g. spiking males)				
Management	People: Owner, employee, visitor				
	Equipment, vehicles				
	Feed and Water				
	Litter/ manure storage & Spread				
	Dead bird disposal				



Risk Factors- Avian Influenza

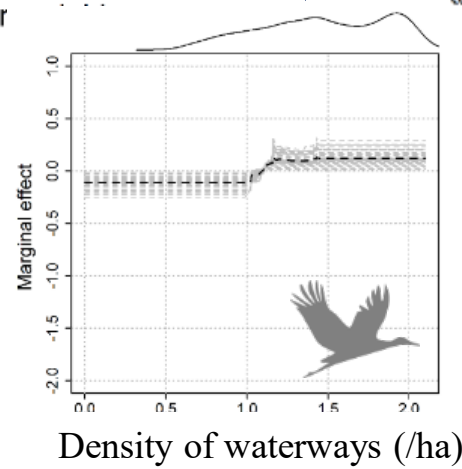
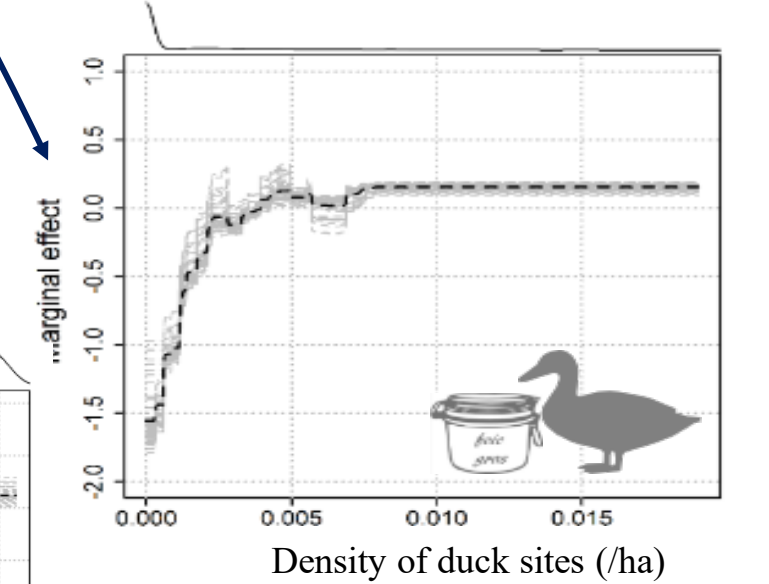
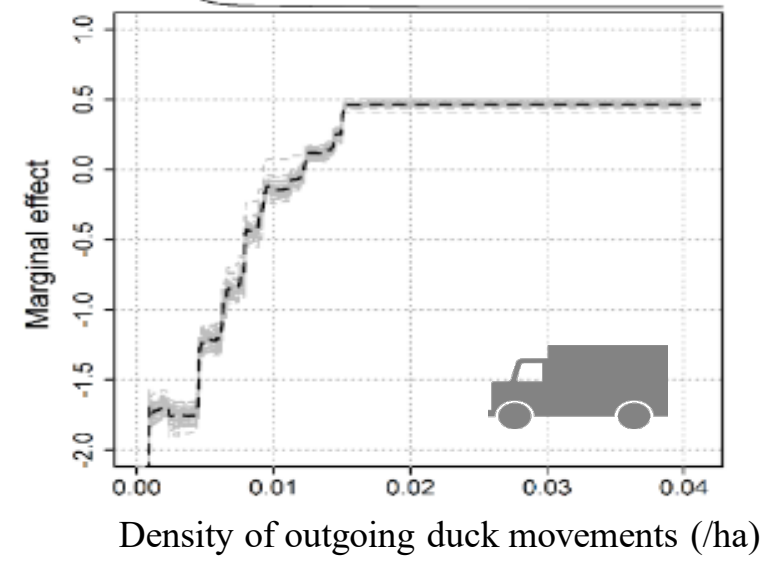
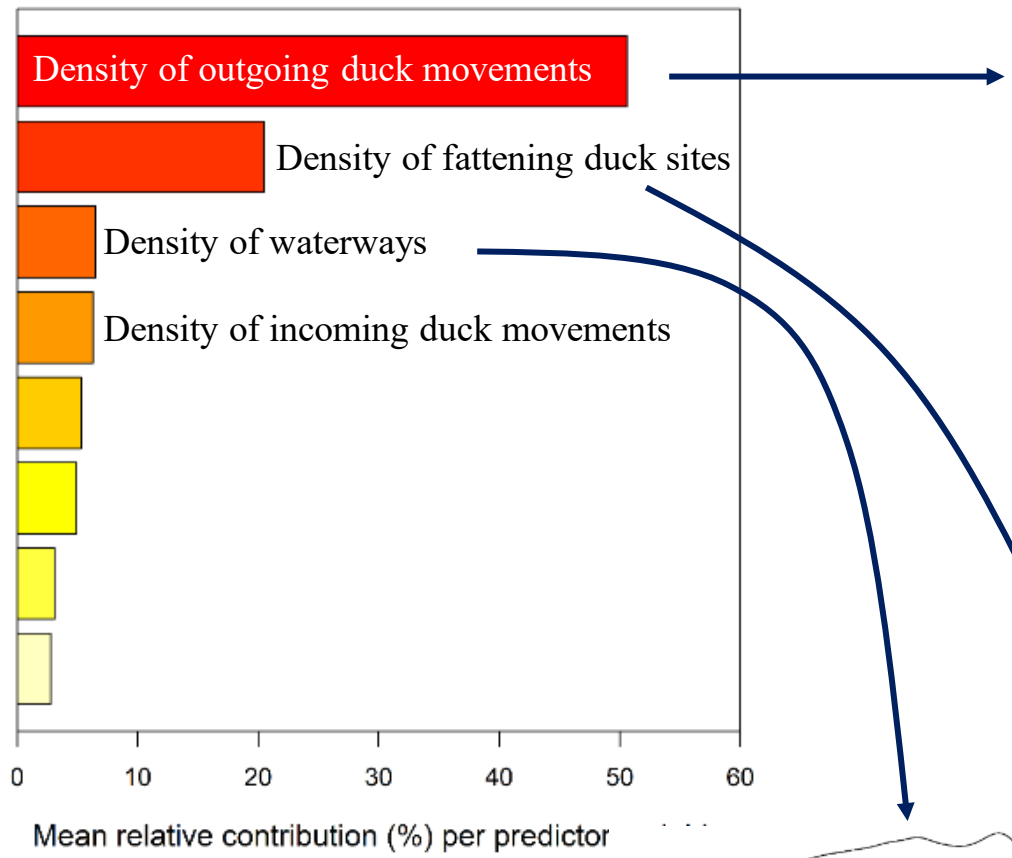
Risk Factor	Risk (O.R.)	Reference
Visitors	8.3	Fasina et al., 2011; Nigeria
Clothing, boots, hands	7.0	Nishiguchi et al., 2007; Japan
Sharing equipment	29.4	Nishiguchi et al., 2007; Japan
Birds > 10 weeks of age	2.0 – 4.9	Thomas et al, 2005; McQuiston et al, 2005
Rendering vs on-site disposal	7.3	McQuiston et al, 2005
Racoons or foxes observed near farm	2.0	McQuiston et al, 2005
Darkling beetles, flies (30% IA+ at 2.3 km from positive flock), Transportation		

Hierarchy of explicative variables



Backyard flocks

- Laryngo. 25%
 - Myco. G. 22%
 - Myco. S. 67%
 - AI-H5 (ducks) 31%*
 - AI-H5 (Industry owner) 17%**
- Souvestre et al., 2018



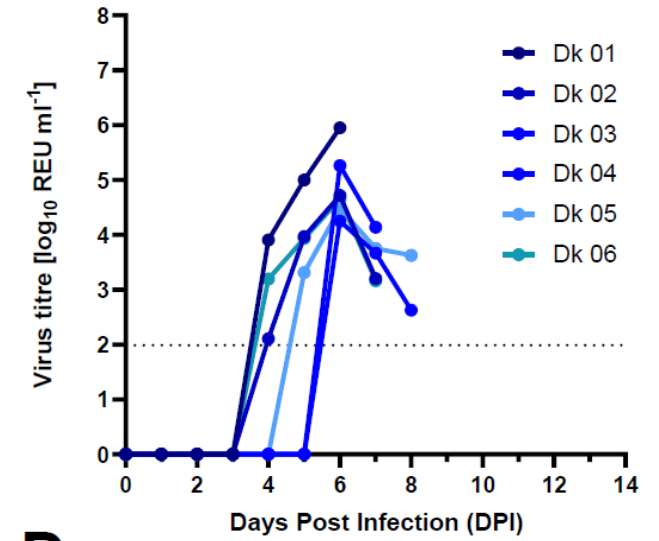
France – 2015-2017



Oropharyngeal

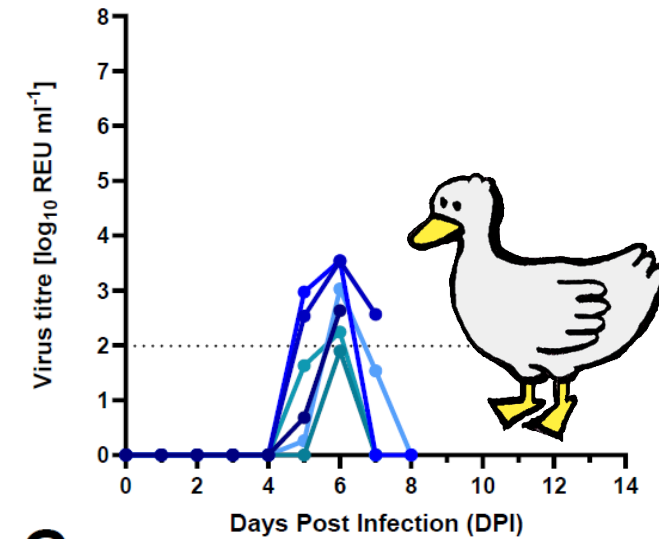
A

Low



Cloacal

D



G

Building design and farm layout

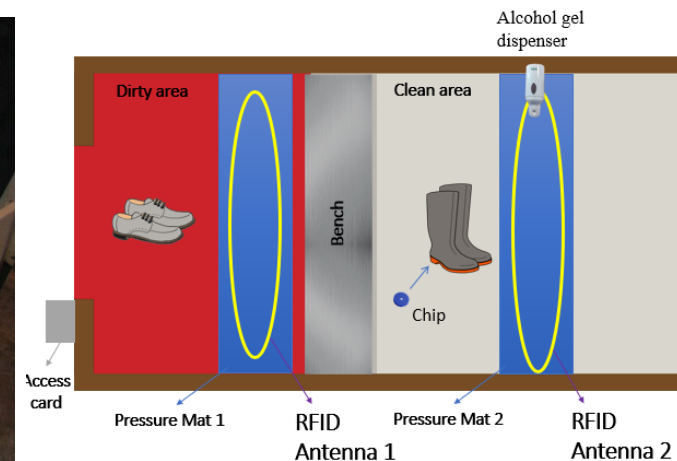
- Extremely large farms with multiple buildings
- Ponds/water bodies on farms
- Anything that requires regular and repeated entry to a building
- Open-sided buildings
- Uncontrolled fan outlets
- Inlets/fan with no biofilters
- Moving clean and dirty stuff in and out the same building entrance (cross-contamination)
- Inadequate anterooms



Anteroom Design

Racicot et al., 2011

Factor related to compliance	Biosecurity measure	Odds ratio	Type of farm
Easy to comply vs. difficult	Respect of areas at exit	13.1	Layer, broiler, breeder
Physical barrier in barn entrance	Respect of areas at entrance	9.1	
	Respect of areas at exit	4.8	



Cleaning & Disinfection

- Inadequate contact time (detergent and disinfectant)
- Failure to use soap/detergent when cleaning
- Failure to get everything dry before disinfecting
- Disinfecting immediately after cleaning rather than just prior to use (equipment being stored outside after C&D and getting contaminated with bird droppings)
- Monitoring C&D (changes in personnel, interpretation differences on “clean”, etc.)
- Failure to make sure C&D and biosecurity supplies are being ordered and available
- Failure to observe the process

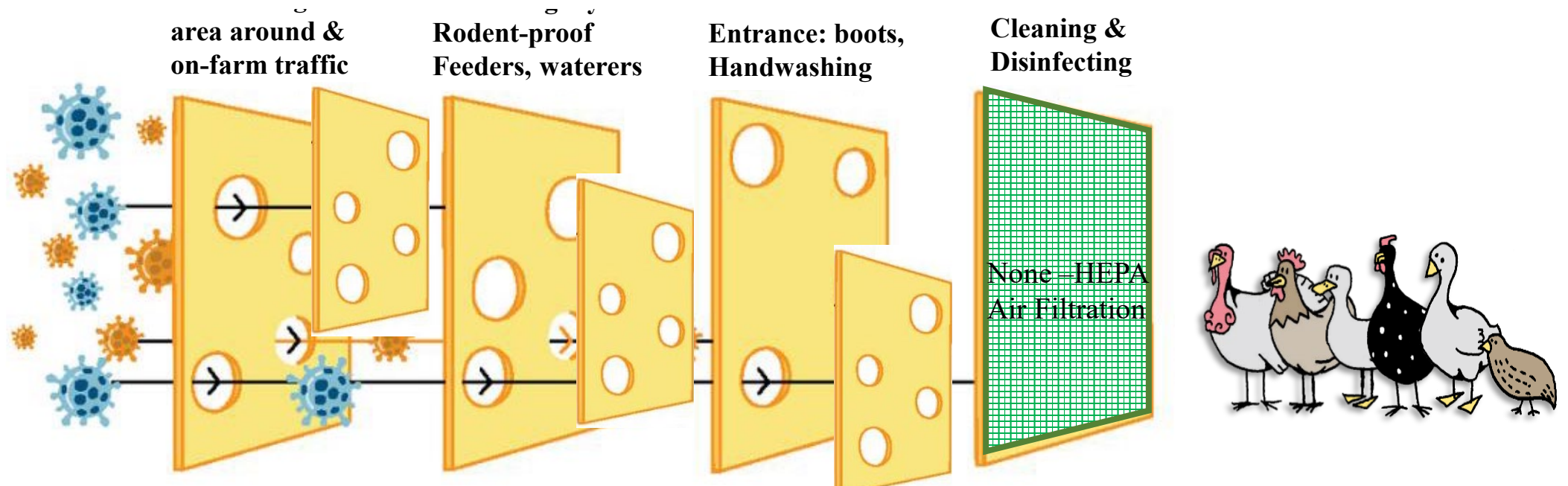


Gonder & Vaillancourt, 2023



Layers & Redondance

- You will not get 100% compliance by everyone
- Ask yourself, what can I do to insert easy, not expensive biosecurity measures that respect the basic principles & support what I already have in place.

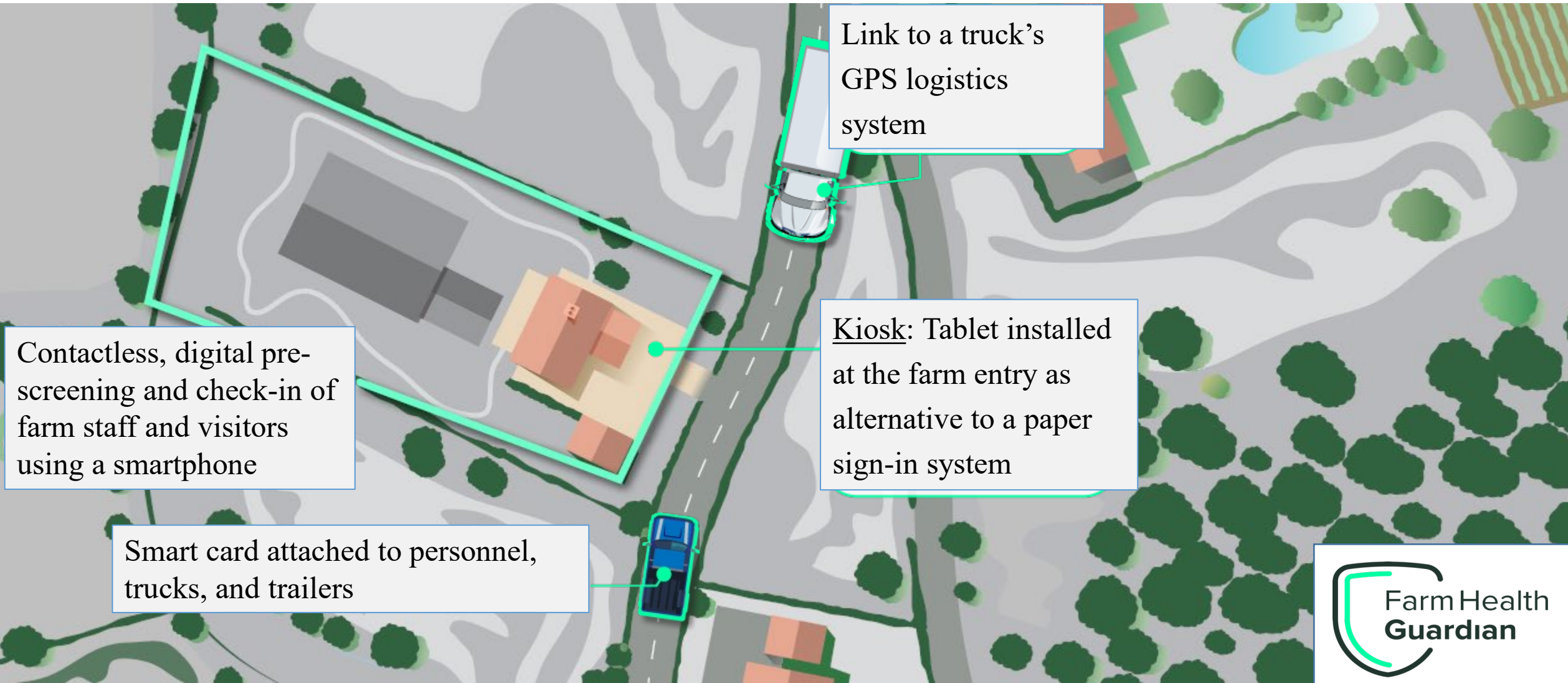


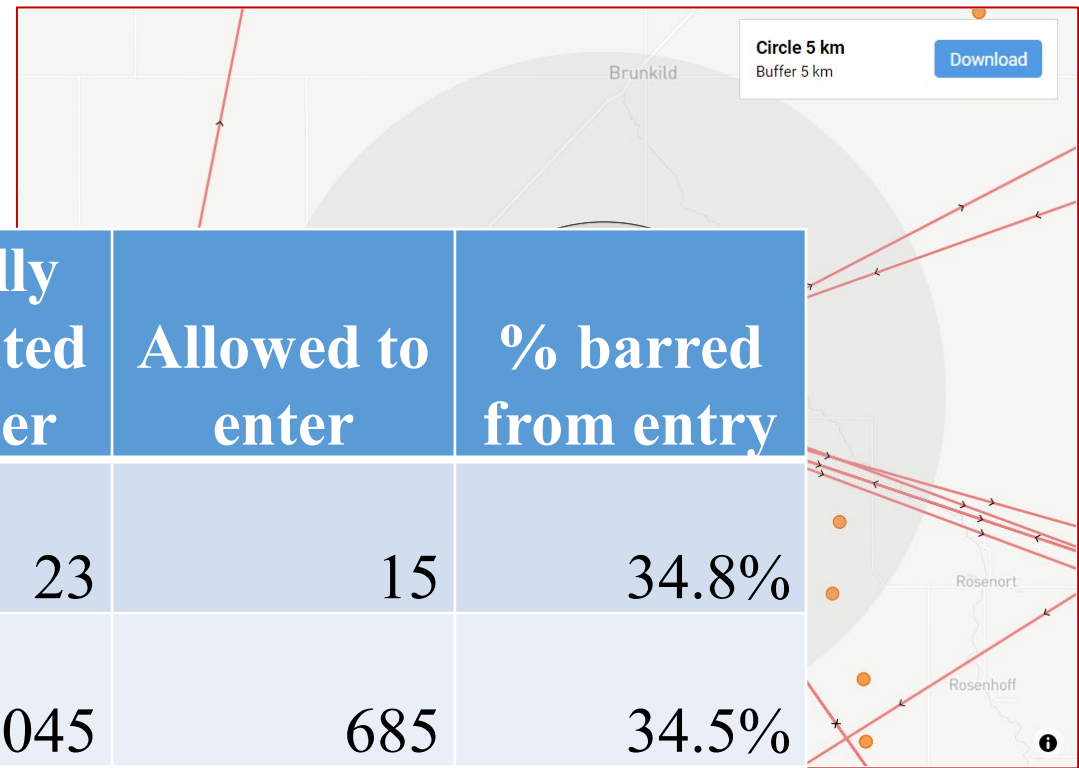
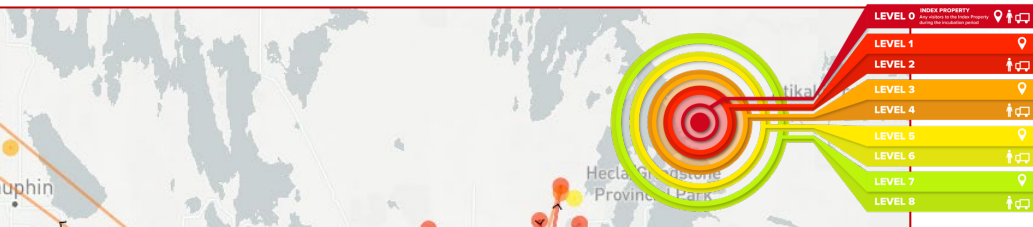
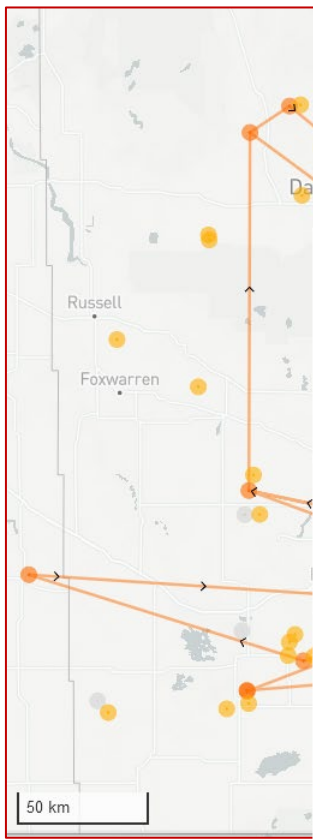
Multiple ways to record movement

Enables rapid contact tracing in the event of an outbreak

Recording movements on and off farm only

Allowing networking analysis, development & implementation of zoning strategies, modelization





Reason	Initially prevented to enter	Allowed to enter	% barred from entry
Recent contact with different commodity	23	15	34.8%
Recent contact with same commodity	1045	685	34.5%
Trying to enter when farm locked down	5391	1883	65.1%
Other (e.g. COVID)	53	20	62.3%
Sickness (Flu)	10	4	60.0%
Recent travel from restricted country	28	15	46.4%
Total	6550	2622	60.0%

Farms
Almond Farm
Lapis lazuli Farm

22	12/03/2022
Farm	Gray (X11 gray) Farm
m	Dark purple Farm
	Gray (X11 gray) Farm
en	
Farm	
en	

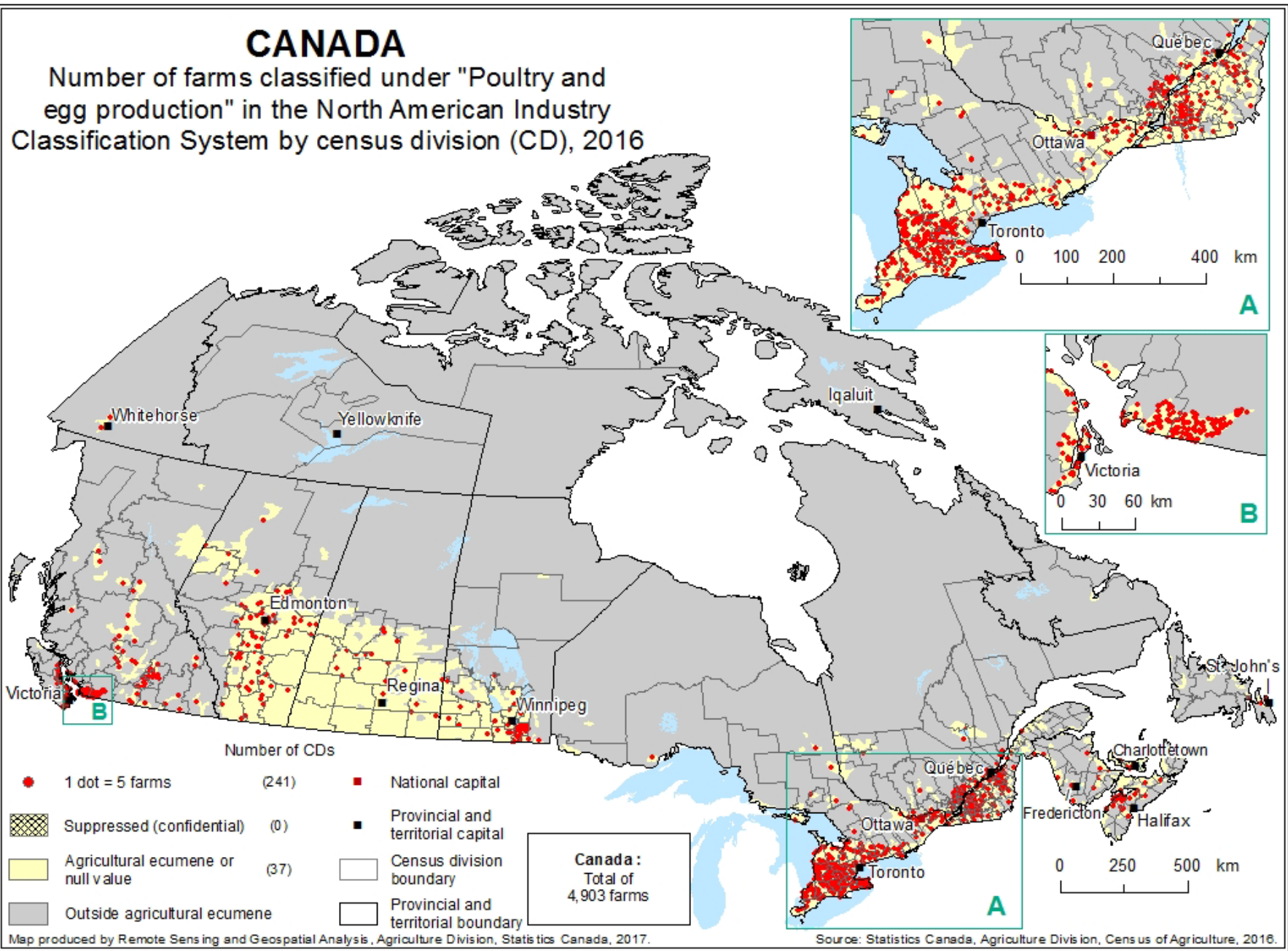
1	10:17-09:05 Maggie Duncan [RAZ (Barn, feed mill, office)]	07:27-10:07 Corey Robinson [CAZ (Yard)]	13:42-14:04 Truck 2232	Little boy blue Farm	Dark slate blue Farm	Light steel blue Farm	Light steel blue Farm	Light steel blue Farm	Brandy Farm	Light steel blue Farm
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Commercial & Alternative Productions

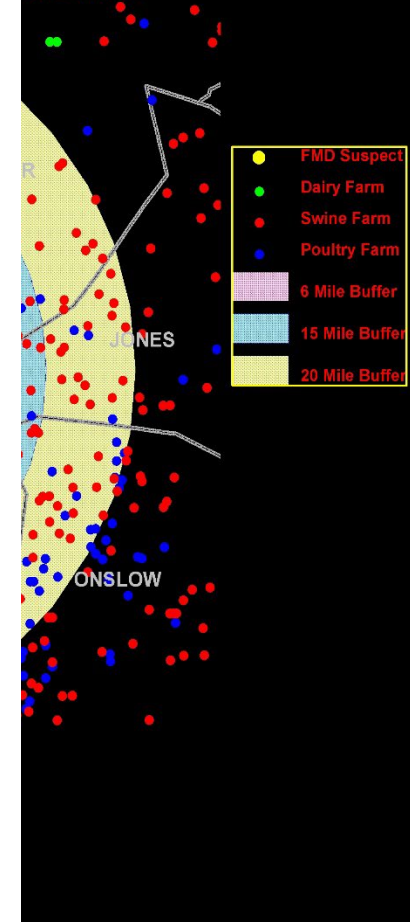


Too-

Wh
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Reg

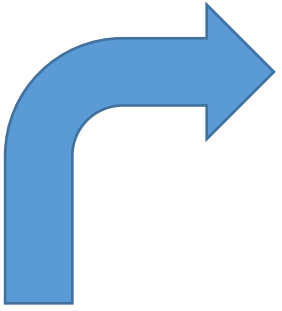
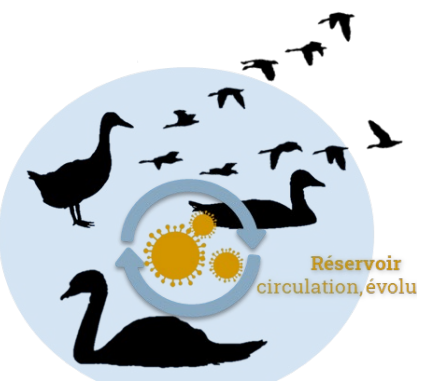


Farms
ing FMD Suspect
arolina

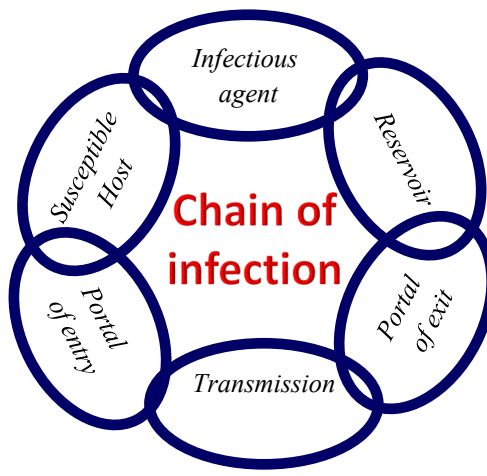
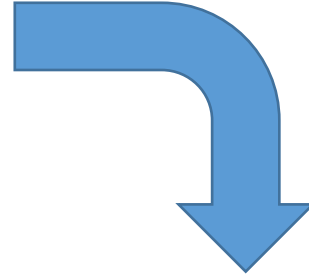


35%

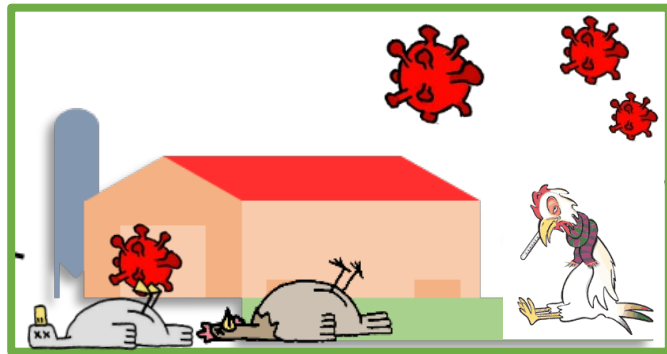
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	Insects/vectors				
	Wildlife (e.g., waterfowl, rodents)				
Poultry	Type of poultry production				
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	New arrivals (e.g. spiking males)				
Management	People: Owner, employee, visitor				
	Equipment, vehicles				
	Feed and Water				
	Litter/ manure storage & Spread				
	Dead bird disposal				



Insects – Darkling beetles
 Rodents
 Wild birds
 Visitors – vehicles
 Sharing equipment

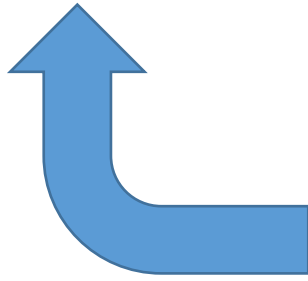


Overdensity - flock
 Overdensity - region
 Multi-species
 Multi-age

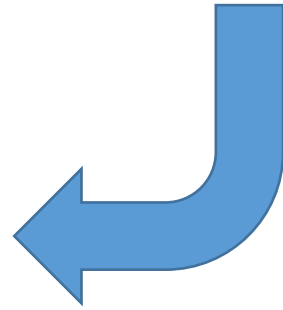


Poultry site

Inadequate sanitation
 water/feed
 Manure – Used litter
 Dead bird disposal



Inadequate environment
 Inadequate biosecurity

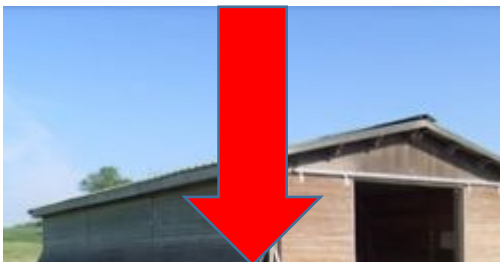


Recurrent pandemic of 2.3.4.4.b H5 Highly Pathogenic Avian influenza

Time for a paradigm shift in control policies



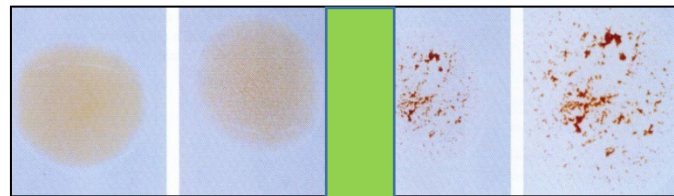
Biosecurity



Regional Biosecurity



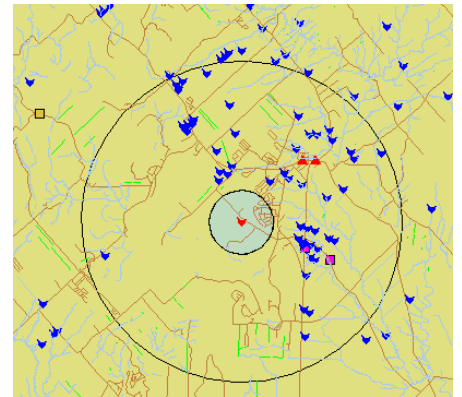
Surveillance



Environmental Sampling

Risk Assessment

Cutting-edge
Diagnostics
Surveillance



On-Farm Biosecurity



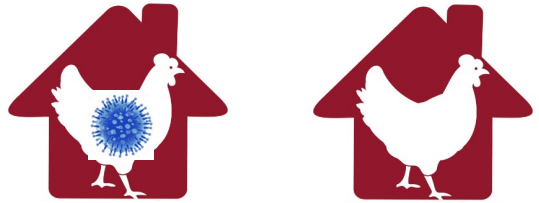
Regional Biosecurity



One Health Approach ?

Improve Barn Entrance Design

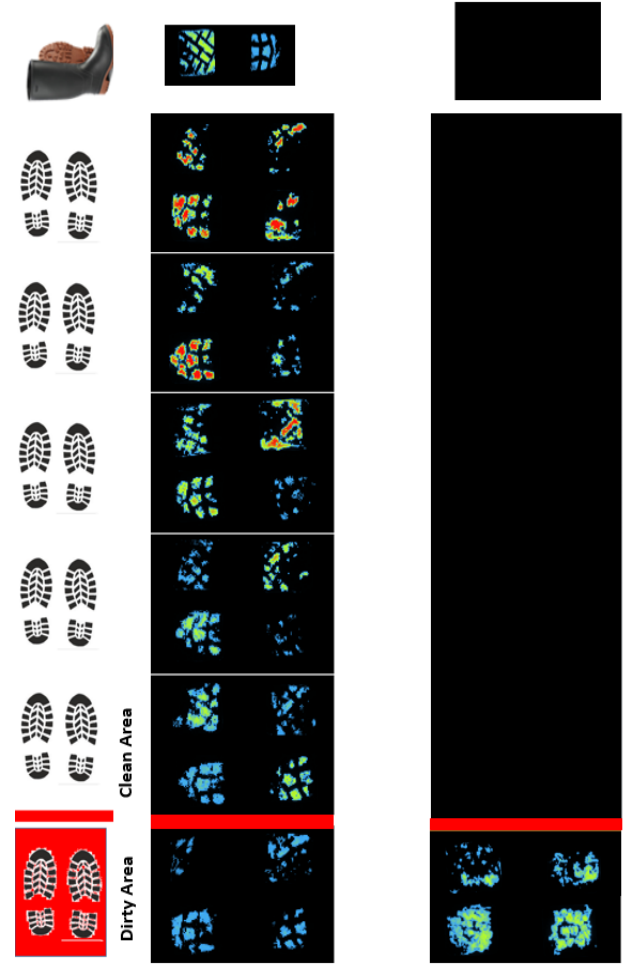
unique radical
 success destination significant disrupt
 solution plan leap motivation
 future fundamental communicate different
 en fic



- Need fixing/improvement:**
- Movement of vehicles & personnel
 - Ctl. Acc. Zone/Restr. Acc. Zone
 - Rules for new constructions
 - Dead bird management
 - Anteroom (compliance)
 - Cleaning & Disinfection
 - Rodent / insect control
 - Communication



Biosecurity measures
 easier, faster, cheaper



Thank you!



*« Là où il y a de
l'homme, il y a de
l'hommerie. »*

Saint François de Sales



Questions?