# FOOD SYSTEM RESILIENCE: LOOKING THROUGH CANADIAN LENSES

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Prepared by

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# FRAMING THE ISSUES - 1

Canadian Food Systems (CFSs) Cornerstones:

- Supply stability, tech & management innovation, food access
- Capacity to respond to shocks & opportunities

On-going & Emerging Challenges:

- Anthropocene, international markets, evolving rural & urban demographics, COVID-19, etc

CFS & Resilience

- Widespread general interest, limited specifics

# FRAMING THE ISSUES - 2

SETTING THE TABLE

# FRAMING THE ISSUES - 3

Food Policy for Canada – Everyone at the Table (AAFC 2019)

~ Food Systems Key Points ~

***FS Definition**: FSs, including the way food is produced, processed, distributed, consumed & disposed of ..*

***Aligning FS Actions:** The social, health, environmental & economic components of food systems are interdependent; however, they are often addressed in isolation.*

***What is Food Policy:** …can also help … understand the impacts & opportunities for change within the CFS.*

***Reconciliation**: First Nations, Inuit & Metis communities .. have distinct FSs.*

# FRAMING THE ISSUES - 4

Food Policy for Canada – Everyone at the Table (AAFC 2019)

~ Resilience Key Points ~

***Vision***: *CFS is resilient, innovative, sustains our environment & supports our economy.*

***Priority Outcomes***: *Improves community capacity & resilience to food-related challenges. Improve climate resilience of CFS*

***Guiding Principles***: *Innovation - Policy process reflects a people-driven FS that is resilient & adaptive*

# PAPER'S PURPOSE & OVERVIEW

*Apply Resilience Principles to Enhance Our Understanding of COVID-19 Impacts on Canadian Food Systems Resilience (CFSR)*

**FOUNDATIONAL SNAPSHOTS & TRANSDISCIPLINARITY**

- CFS, COVID-19 in Canada, Resilience Principles

**COVID-19 & CFSR: INITIAL INSIGHTS**

- Primary Production, Processing, Food Services, Consumption - Hunger

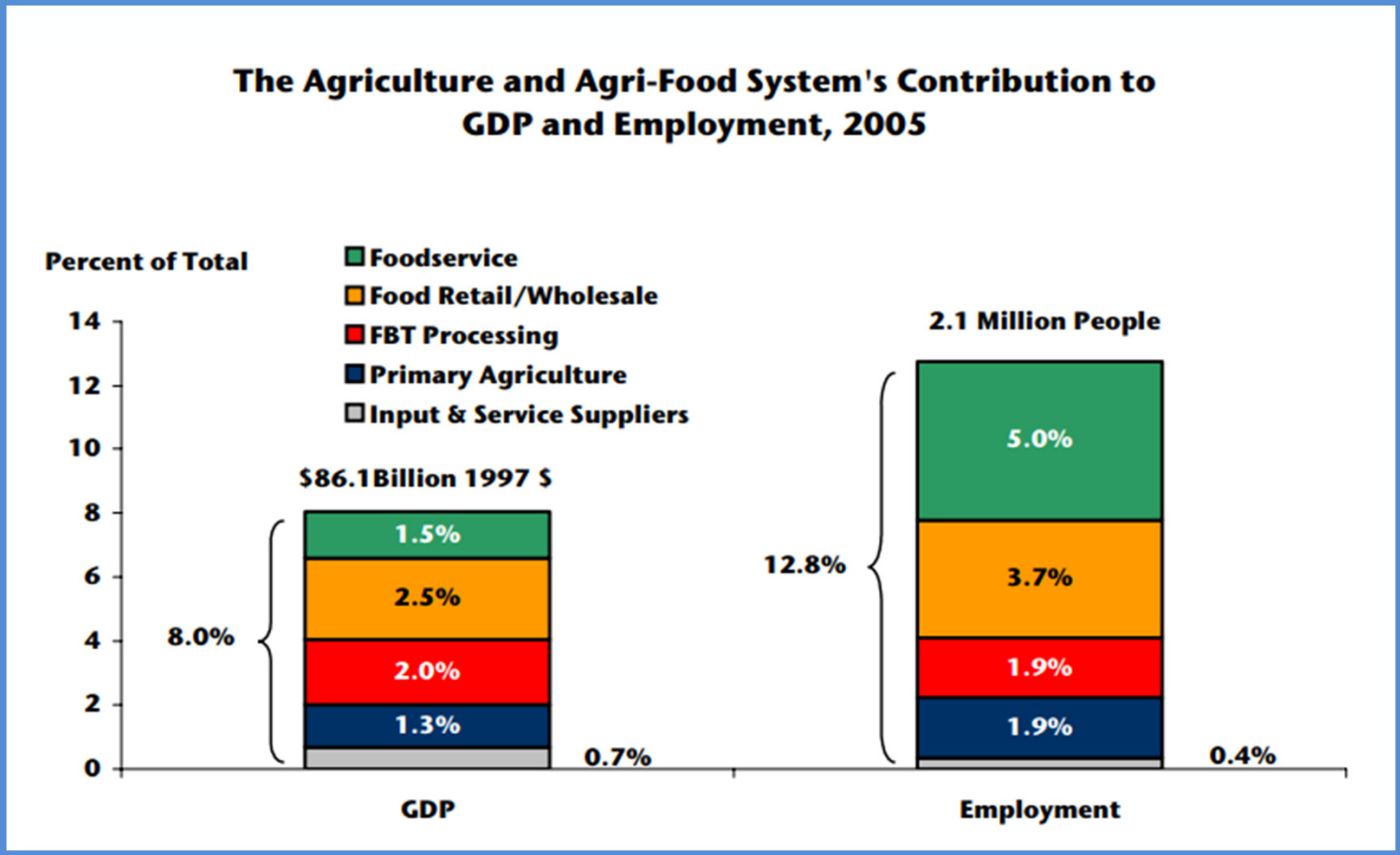
**TAKE HOME MESSAGES**

- Canadian Lessons, Advancing FSR

# CFS PRE-COVID SNAPSHOTS - 1

## Integrated Mature CFS

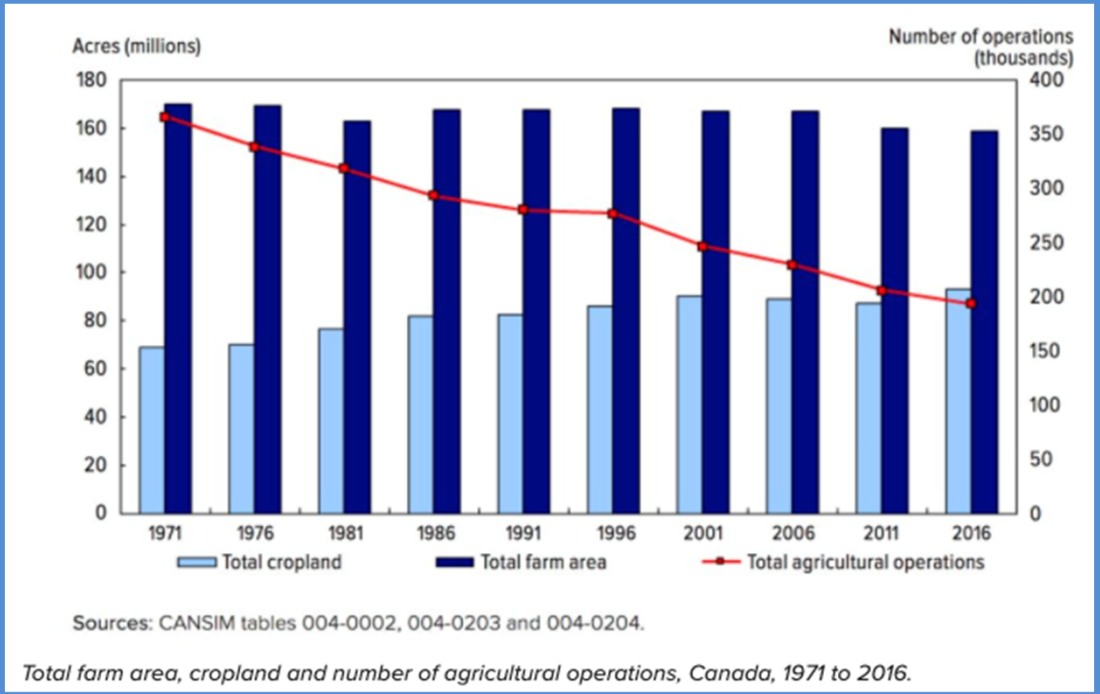
*While the relative contribution of Canadian agriculture to the overall economy has been declining, the absolute size of the sector sector has continued to grow.*




AAFC
2007

# CFS PRE-COVID SNAPSHOTS - 2

## Concentration of Primary Production

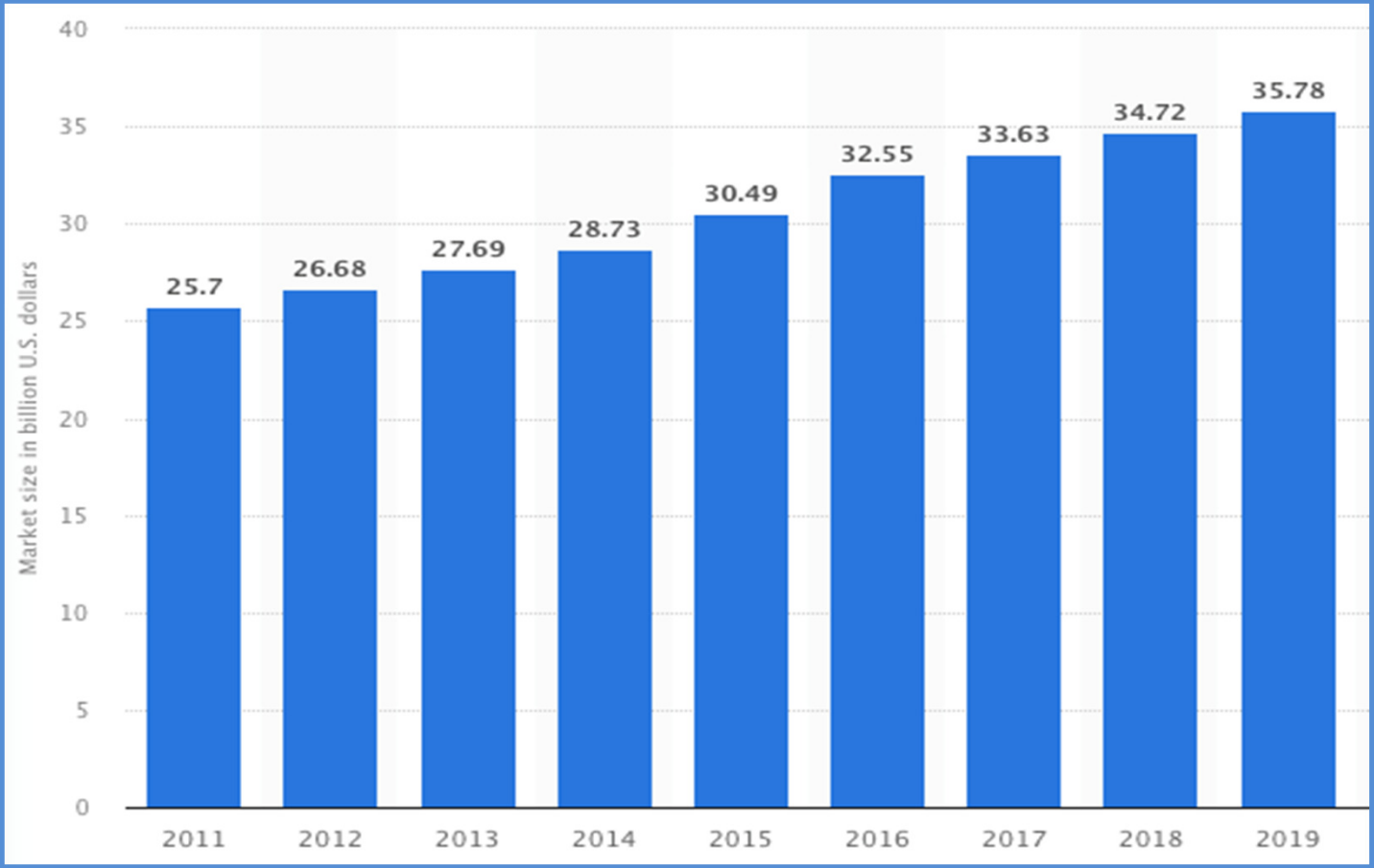



Sources: CANSIM tables 004-0002, 004-0203 and 004-0204.

*Total farm area, cropland and number of agricultural operations, Canada, 1971 to 2016.*

# CFS PRE-COVID SNAPSHOTS - 3

## Food Service Growth

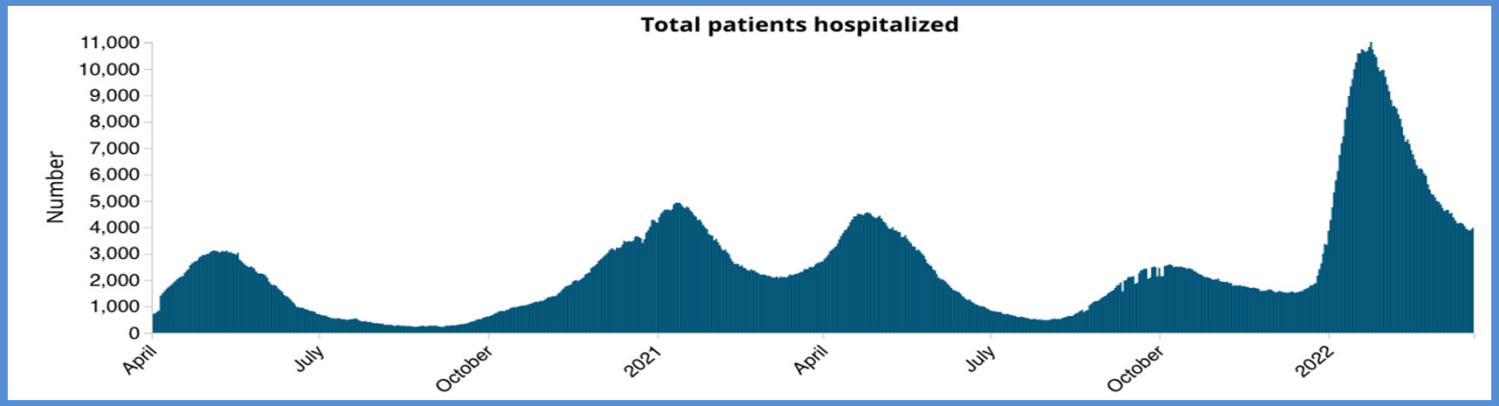


# CFS PRE-COVID SNAPSHOTS - 4

Consumption - Hunger Issues: Ontario 2019

Feed Ontario 2019 Hunger Report

# COVID-19 HOSPITALIZATIONS: APR 2020 – FEB 2022




Canada

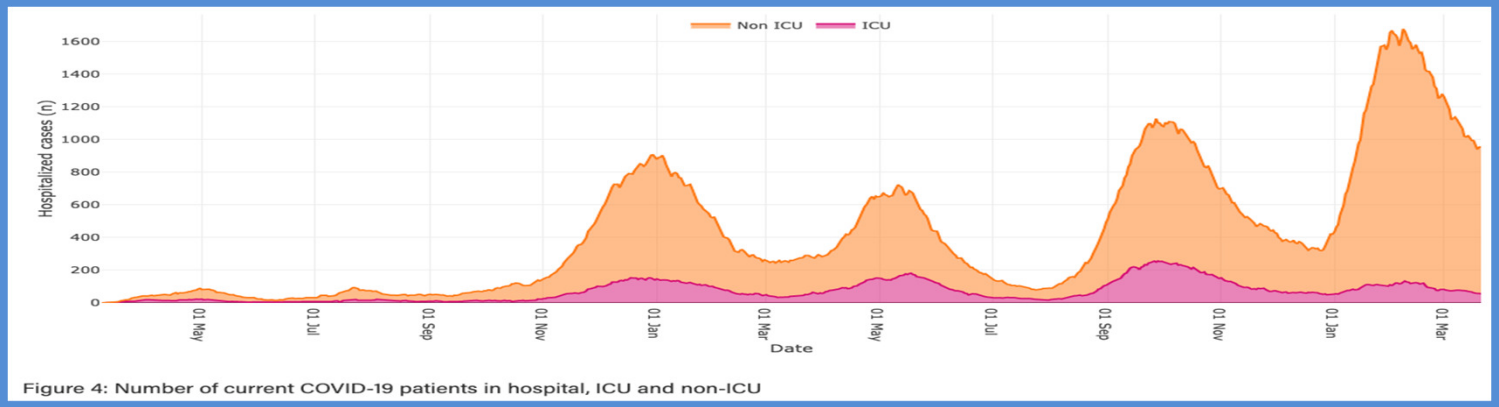
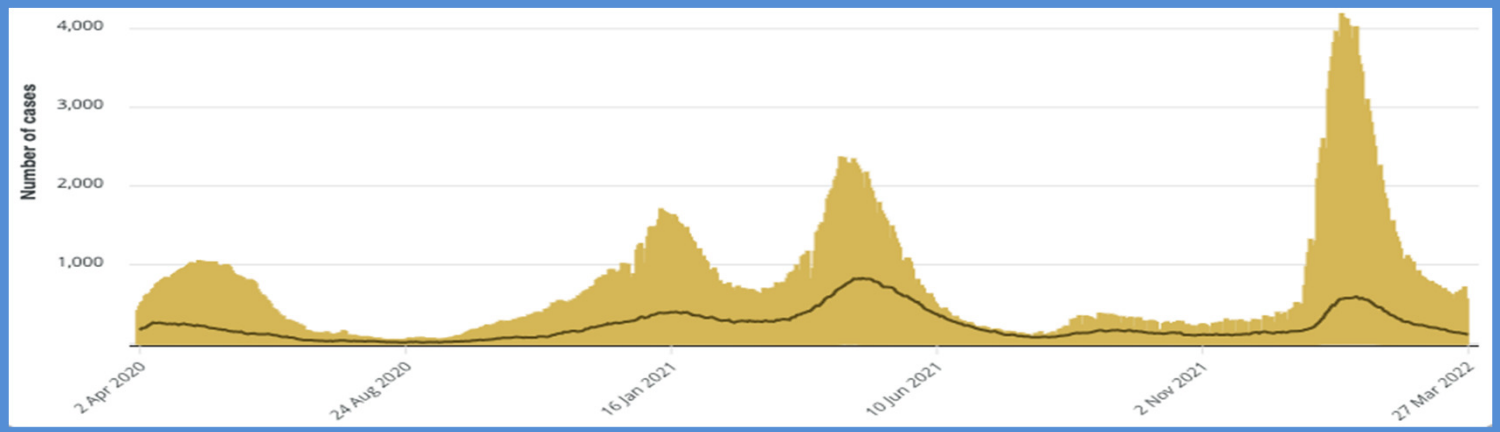



Figure 4: Number of current COVID-19 patients in hospital, ICU and non-ICU

Alberta




Ontario

# THE RESILIENCE – CFS BRIDGE - 1

**R Definition:**

Dynamic property facilitating system functioning in response to shocks & new opportunities. Not an end-goal or static entity.

**R Questions:**

*R for Whom?* From who's perspective?

*R of What?* What is threatened?

*R to What?* What is the threat?

*R Amelioration?* How to enhance R over a designated time?

# THE RESILIENCE – CFS BRIDGE - 2

**R (Selected) Principles**:

*Diversity & Redundancy*: Multiple elements capable of enhancing options to buffer adverse impacts of shocks.

*Connectivity*: Pathways or interactions among system elements facilitating or impeding movement, flows & disturbance spread.

**R Strategies**:

*Persistence*: Coping, restoration & recovery of function.

*Adaptation*: Adjustments allowing system to stay the course.

*Transformation*: Fundamental shift in system structure & feedback

# CFSR & COVID-19

**Initial Assessment Process**

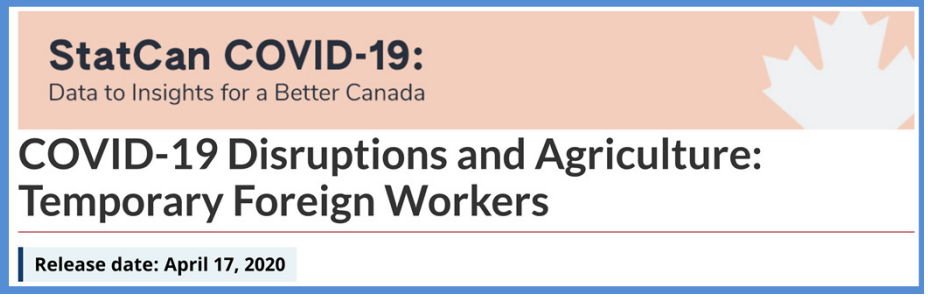
1. Mine COVID – Canadian Agri-food reports for key findings.
2. Map key findings onto selected CFS Components (i.e. Primary Production, Food Processing, Food Services, Consumption – Hunger)
3. Organize each CFS Component key findings according to Resilience Principles (i.e. Diversity & Connectivity) and Strategies (i.e. Persistence, Adaptation & Transformation)

# CFSR & COVID-19: PRIMARY PRODUCTION

| R PRINCIPLE[1] | R STRATEGY[1] | | |
|---|---|---|---|
| | P | A | T |
| **DIVERSITY** | | | |
| Interaction with Meat Processing Plants | | | |
| *Impact:* Processing concentrated in few large plants, COVID outbreaks shutdown plants | x | | |
| *Response:* Producers hold livestock longer | x | | |
| **CONNECTIVITY** | | | |
| Temporary Foreign Workers (TFWs) | | | |
| *Impact*: Border restrictions reduce labor supply, especially for fruit & vegetable producers | x | | |
| *Response*: Federal gov't assists with isolating TFWs upon arrival. | x | | |

[1] P = Persistence. A = Adaptation. T = Transformation

Derived from CFA 2021, FCS 2020, McDevitt 2020, USDA 2020



# CFSR & COVID-19: FOOD PROCESSING

| R PRINCIPLE | R STRATEGY[1] | | |
|---|---|---|---|
| | P | A | T |
| **DIVERSITY**<br>Factory Technology<br>*Response*: Continued automation interspersed with laborers, reducing infection rates | | x | |
| **CONNECTIVITY**<br>Factory Working Conditions<br>*Impact:* Crowded indoor plants conducive to virus transmission, leading to increases in absenteeism.<br>*Response*: Increase PPE for line workers. Daily COVID tests introduced. Staggered shifts reduce person-to-person contacts. | x | x | |

[1] P = Persistence. A = Adaptation. T = Transformation

Derived from AFI 2020B, Charlebois 2020, WSPS 2020

**Alberta meat plant that had North America's then-largest COVID-19 outbreak has greatly improved safety: union**

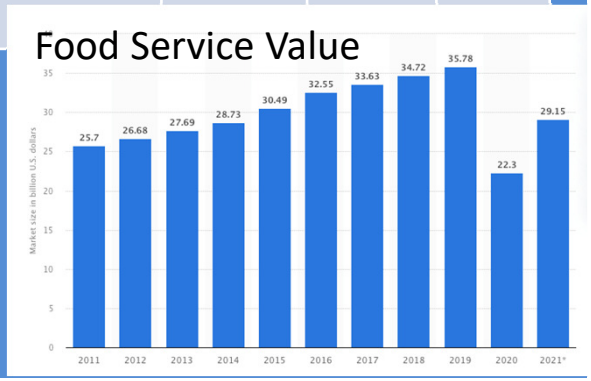
But anxiety still runs high among workers, says UFCW president Thomas Hesse

CBC News · Posted: Aug 11, 2020 12:36 PM MT | Last Updated: August 12, 2020

# CFSR & COVID-19: FOOD SERVICES

| R PRINCIPLE | R STRATEGY[1] | | |
|---|---|---|---|
| | P | A | T |
| **DIVERSITY**<br>On-site Dining<br>*Impact*: Mar – Dec 2020: Food services employment down by 55%, sales down by 61% | x | | |
| *Response*: Targeted government subsidies | x | | |
| **CONNECTIVITY**<br>Takeout Service<br>*Response*: +50% of outlets transition to contactless delivery. | | | x |
| *Impact*: Shoreline litter +27% in 2020, owing to increase use of single use containers | x | | |

[1] P = Persistence. A = Adaptation. T = Transformation
Derived from Sood 2021, Vandameer 2021

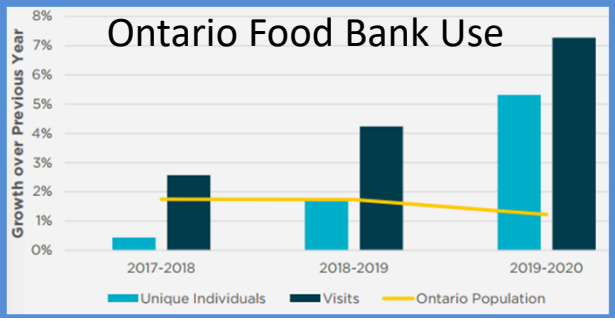


# CFSR & COVID-19: CONSUMPTION - HUNGER

| R PRINCIPLE | R STRATEGY[1] | | |
|---|---|---|---|
| | P | A | T |
| **DIVERSITY**<br>Children<br>*Impact:* Unemployment increases hunger amongst vulnerable. | x | | |
| *Response:* Enhanced school breakfast programs dampen impact when schools are open. | | x | |
| **CONNECTIVITY**<br>Food Banks - Insecurity<br>*Impacts*: More difficult for grocery stores, hotels, etc to transfer food. Income loss increases reliance. Food insecure Canadians increase from 10.5% in 2018 to 14.6% in 2020 | x | | |
| *Response*: Feds create $100M Emergency Food Security Fund | x | | |

[1] P = Persistence. A = Adaptation. T = Transformation

Derived from Breakfast Club of Canada 2021, Edmonton SPC 2020, Food Banks Canada 2021, Laban 2020, McDevitt 2020, OCC 2021, Stas Can 2020, Wakefield 2021



# CFS, RESILIENCE & COVID-19:
# ~ CFSR PERSPECTIVES ~

R assists with situating actors & actions in broader CFSs: Differentiated actor roles, Neglected & over-managed FS components

UK FSR “Precision”: Consistency vs Rigidness

Improved “lines of sight”: Contactless delivery & waste, School breakfast programs vs school closures

P & A strategies dominate over the short-term ***Coupled With*** Reinforcement of agency within CFS & T

# CFS, RESILIENCE & COVID-19:
# ~ FSR: CONCEPTS & TACTICS ~

Moving beyond enhancing resilience to shocks

- Sufficient resilience to manage future shocks
- Enhance capturing of opportunities

R is a messy world (complexity x dynamics)

- Spatially & temporally uneven shocks & opportunities
- Co-existence of multiple FSs in disequilibrium is the norm

Enhancing recognition of differential agency across FS actors

- Transformation & addressing power relationships

# THANK YOU

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