

BARN FIRE PREVENTION AND THE LAW: CHALLENGES AND OPPORTUNITIES FOR REFORM

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ABSTRACT

In the agricultural sector, a barn fire is a devastating disaster that destroys lives and livelihoods in minutes. They can be traumatic for farmers, farmworkers, first responders and their communities, and they are particularly tragic when farm animals are killed. Common causes of barn fires are electrical malfunctions or improperly placed or faulty heating devices as well as the presence of combustible materials. Many farm buildings also lack adequate fire detection systems and suppression methods.

Although National Model Codes and provincial legislation establish minimal fire safety and prevention requirements, they are unevenly applied to animal housing facilities. While animal rights advocates have rightly been calling on all levels of government to introduce laws and regulations to prevent barn fires and their associated costs, the private sector also has a role to play.

This paper provides an overview of the prevalence of barn fires in Canada, their causes and their consequences. After establishing that current regulations overseeing disaster management and emergency preparedness in the agricultural sector are inadequate, this paper suggests that a mix of public law and private governance schemes can mitigate these risks in manner that treats farm animals with greater concern and respect.

KEY WORDS

Barn fires; agricultural law; animal welfare; fire safety and prevention; private governance

I. INTRODUCTION

In the evening of March 22, 2019, an electrical malfunction at a dairy farm in the Chaudière-Appalaches region of Quebec ended in tragedy.¹ The malfunction caused a fire. The dairy farm's barn, which housed 185 cows, was quickly engulfed in flames. The owners were not on site when the fire occurred. The fire was only discovered later when someone arrived to check on the animals. By then, it was too late to intervene. A total of 184 cows were killed. Miraculously, one survived, having escaped from the building. The farm building, worth approximately \$1 million, was also reduced to rubble.

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¹ Suzanne Colpron, Une Vache Miraculée, *La Presse* (2 May 2021), online: <<https://www.lapresse.ca/actualites/2021-05-02/une-vache>> [Colpron, 2021].

Sadly, this type of tragedy is not unique. Every year, millions of farm animals die in barn fires, as well as wildfires, floods, hurricanes, and other natural disasters. A study conducted by Humane Society International estimates that at least 740,000 farm animals died in barn fires in Canada between 2015 and 2019.² In the United States, barn fires killed an estimated 3 million farm animals between 2018-2021.³ Increasingly, extreme weather events are contributing to these fatalities. For example, the 2021 Pacific Northwest floods and the Western Heat Dome killed an estimated 1.3 million farm animals in British Columbia.⁴ In North Carolina, flooding caused by Hurricane Florence killed 3.4 million chickens and 5,500 pigs in 2018.⁵ Two years earlier, North Carolina was the site of another disaster when 1.8 million chickens and 2,800 pigs died in the aftermath of Hurricane Mathew.⁶ The problem also extends beyond North America. Australia's wildfires killed or displaced nearly 143 million mammals in 2020, including reports of at least 6,200 cattle in New South Wales.⁷ More recently, thousands of farm animals were killed in wildfires in Turkey in 2021 and in Chile in 2023.⁸

Each of these deaths matter. Farm animals are sentient beings with psychological and biological needs.⁹ Despite the suffering it entails, we confine animals and kill them because it serves a social benefit: we consume their flesh along with their eggs and milk. This article does not take a position regarding whether animal agriculture should be abolished. This question is well-covered in existing scholarship.¹⁰ Instead, adopting a welfarist perspective, this article focuses on what rules are needed to improve and safeguard animal welfare during their short lives, from the moment they are born, until they are slaughtered.¹¹

Using barn fires as a case study, this paper argues that farm animals are needlessly exposed to risks of injury and death when disaster strikes. While it is impossible to eliminate all risk, this paper takes the position that injuries and fatalities are exacerbated by legislative and regulatory vacuums. However, a mix of public law and private governance schemes can mitigate these risks by requiring producers to adopt new fire safety practices.

2 Humane Society International/Canada, *Untold Suffering: The Tragic Impact of Barn Fires on Animals*, [HSI, 2020].

3 Animal Welfare Institute, *Barn Fires: A Deadly Threat to Farm Animals*, 2021 [AWI, 2021].

4 Brian Hill, "1.3 million farm animals dead due to climate change: What can B.C. do to stop the next catastrophe?" *Global News* (7 December 2021), online: <https://globalnews.ca/news/8427762/b-c-flooding-kills-650000-farm-animals/>

5 Michael Biescker, "3.4 million poultry, 5,500 hogs drowned in Florence flooding", *AP News* (18 September 2018).

6 Compassion in World Farming, "The Hidden Victims of Hurricane Florence" (26 September 2018), online: *Compassion in World Farming* <<https://www.ciwf.com/blog/2018/09/farmed-animals-the-hidden-victim-of-hurricanes>>; *Compassion in World Farming*, "The Hidden Victims of Hurricane Florence", *Compassion in World Farming* (9 January 2019), online <<https://www.ciwf.com/blog/2018/09/farmed-animals-the-hidden-victim-of-hurricanes>>.

7 James Glynn & David Winning, "Australia Fires Put Farmers in Double Jeopardy", *Wall Street Journal* (7 September 2020), online: <<https://www.wsj.com/articles/australia-fires-put-farmers-in-double-jeopardy-11578388736>>; Tim McDonald, "Australia Fires: the farmers burying their own cattle", *BBC News* (Jan 14 2020), online: <<https://www.bbc.com/news/world-australia-51087273>>.

8 Diana Del Olmo Campos, "Devastating wildfires in Turkey and Greece", *World Wildlife Fund* (12 August 2021), online: <[https://updates.panda.org/med-destructive-wildfires#:~:text=In%20Turkey%2C%20according%20to%20estimates,\(700%2C000%20acres\)%20of%20forest](https://updates.panda.org/med-destructive-wildfires#:~:text=In%20Turkey%2C%20according%20to%20estimates,(700%2C000%20acres)%20of%20forest)>; Pavel Lazo, "Chile: Wildfires kill over 17,000 animals", *Prensa Latina* (22 February 2023), online: <<https://www.plenglish.com/news/2023/02/22/chile-wildfires-kill-over-17000-animals/>>

9 See s. 898.1 CCQ (1991). The Cambridge Declaration of Consciousness provides the following: "Convergent evidence indicates that non-human animals have the neuroanatomical, neurochemical, and neurophysiological substrates of conscious states along with the capacity to exhibit intentional behaviors." Philip Low, "Cambridge Declaration of Consciousness", *Declaration* (Cambridge, UK: 2012).

10 See e.g. Gary Francione, *Why veganism matters: The moral value of animals* (New York, 2021: Columbia University Press); Carol J Adams, *The Sexual Politics of Meat: A Feminist-Vegetarian Critical Theory* (New York: Continuum, 1990, 2010). Peter Singer, *Animal Liberation* (New York: New York Review Press, 2015).

11 For a helpful discussion of the differences between a welfarist and abolitionist perspective, see Raffael N Fasel & Sean C Butler, *Animal Right Law*, Chapter 2 Welfarism vs Abolitionism, A Dichotomy? (Oxford:Hart, 2023) at 34-52.

This paper is divided into three substantive parts. Part II introduces the problem of barn fires in Canada, their prevalence, and their main causes. Part III explains the regulatory framework for fire safety and fire prevention and highlights the wide-ranging exemptions for agricultural activities involving animals compared to those sectors where human lives are at stake. It also provides an overview of existing and recommended best practices for emergency preparedness and management. Part IV advances the argument that non-state actors, such as insurance providers and producer associations, have a role to play to encourage best practices, either alongside or in lieu of legislative reform. The paper concludes with reflections about how lessons learned from barn fires can inform disaster preparedness in the agricultural sector more broadly in the face of a worsening climate crisis.

II. SITUATING THE PROBLEM

A. *Prevalence of barn fires*

Every year, hundreds of thousands of farm animals are killed in barn fires in Canada. In the first in-depth review of its kind published in 2020, Humane Society International provides an overview of barn fire incidences, causes and impacts in Canada.¹² Drawing primarily on information gathered from news reports, it documents 327 deadly barn fires in Canada between 2015 and 2019. During this period, at least 740,000 animals were killed, of which 74% were chickens. That chickens are disproportionately represented in these statistics is unsurprising. Broiler chickens make up most of the animal agriculture industry, accounting for 91% of animals slaughtered for meat in Canada.¹³ In addition, chickens are housed in crowded living spaces that make evacuation difficult. Following chickens, pigs are the second most affected animals, accounting for 15% of all deaths (approximately 114,000).¹⁴ Ducks and turkeys account for 7.26% and 1.74% of fatalities respectively and cows account for 1.37%.

These numbers only tell part of the story. According to media reports identified by Humane Society International, roughly 65 barn fires occur in Canada every year.¹⁵ But the prevalence of barn fires is likely much higher. Statistics from Ontario's Office of the Fire Marshall (OFM) place the number of barn fires involving animals in Ontario alone at 66-71 year.¹⁶ In Quebec, there are on average 209 barn fires, although it is unclear how many of these involve animal fatalities.¹⁷ Given that available media reports of barn fires across Canada are lower than the recorded numbers of fires in either Quebec or Ontario, it would seem that publicly available data on deadly barn fires is lacking, particularly in Western Canada.

There is no legal obligation to report animal fatalities to public authorities. Animal fatalities are instead counted as part of the total property damage, along with the farm building and its contents. For example, Quebec's *Fire Safety Act* provides that municipalities must report all fires that occur in their territory to the Minister of Public Security.¹⁸ Reports must include the date, time and place of the fire, the nature and assessment of the damage, and any details about the possible cause of the incident. The Minister does not

12 HSI 2020 *supra* note 2.

13 Magdaline Boutros & Sandrine Vierira, "Plus de deux millions d'animaux d'élevage abattus chaque jour pour nous nourrir", *Le Devoir* (9 January 2023), online: <<https://www.ledevoir.com/societe/consommation/777140/consommation-deux-millions-d-animaux-abattus-chaque-jour>>.

14 HSI 2020 *supra* note 2 at 6.

15 *Ibid.*

16 HSI 2020 *supra* note 2 at 5; Office of the Fire Marshall, "Ontario Selected Fire Incidents by Property type (detailed), cause and ignition source", Queen's Printer for Ontario [OFM 2021].

17 Québec, Ministère de la Sécurité Publique, *La sécurité incendie au Québec : statistiques sur les incendies déclarés en 2016, 2017 et 2018*. (2021) at 4, online: <https://cdn-contenu.quebec.ca/cdn-contenu/adm/min/securite-publique/publications-adm/publications-secteurs/securite-incendie/statistiques-incendies/stats_incendies_2016_2018.pdf> [MSP, *Statistiques* 2021].

18 QC Fire Safety Act, CQLR c S-3.4 [QC Fire Safety Act].

collect data about animal fatalities caused by barn fires. The absence of any official statistics on animal fatalities has been confirmed through access to information requests.¹⁹ Similarly, in Ontario, it is the duty of the Fire Marshall “to keep a record of every fire reported to the Fire Marshall with the facts, statistics and circumstances” required under the *Fire Protection and Prevention Act*.²⁰ The Fire Marshall does not collect data about animal fatalities caused by barn fires. Fire statistics are recorded according to property categories. Farm buildings fall under the category of “Structure” (as opposed to “Outdoor” or “Vehicle”) and details about fires include a breakdown of fires by structure (e.g., barn housing animals, barn containing equipment or produce only, greenhouse, silo, etc.), the number of human injuries and fatalities, and the estimated financial loss. Animal deaths are included in the calculation of property damage but not as treated as fatalities.²¹

B. Causes of barn fires and aggravating factors

Like determining the number of animals killed, identifying the causes of barn fires can also be difficult. Depending on the severity of the damage to the building, it can be challenging to determine causality. Details are frequently unknown at the time the incident is reported to the media. If and when more information is obtained, it is rarely made public. According to both Humane Society International and the Animal Welfare Institute, two thirds of reported barn fires in Canada and the United States do not have determined causes.²² Where the cause is either suspected or effectively determined, the majority (65-75%) are the result of electrical or mechanical malfunctions and faulty heating devices.²³

Data from Ontario and Quebec provide additional details to better understand the sources and causes of fires.²⁴ In Ontario, nearly half of all fires in farm buildings have an undetermined cause (43.3%), 21.3% are caused by mechanical or electrical failures and 10.4% due to misuse of ignition sources.²⁵ Initial sources of ignition are similarly difficult to confirm, with 43% undetermined, 20.3% electrical equipment, and 8.2% from heating equipment.²⁶ In Quebec, initial ignition sources have been identified as follows: 30.4% unknown; 14.1% heating equipment; 14.1% other source of heat; 13.5% electrical distribution; 12.3% electrical equipment; 8.9% smokers’ articles or open flames; 3.4% cooking devices; and 3.3% vehicle.²⁷ The top two known causes are mechanical or electrical default and human error.²⁸

Farm buildings are highly flammable structures, often containing combustible materials such as hay or other animal feed alongside the animals that live in them. Many farm buildings in Canada were constructed during the 1950s and 1960s before the introduction of building codes and fire codes. However, as will be discussed below, even new facilities are exempt from many fire safety standards that apply to residential or commercial properties because farm buildings are generally classified as low-human occupancy.

Fires spread quickly when they occur. For example, in 2016, a hog farmer in Southwestern Ontario is reported to have checked on his animals at 1:00AM and there was no sign of a fire. Within two hours, the

¹⁹ Commission d'accès à l'information du Québec, (2018), ATI File 1017791-J (on file with author).

²⁰ Fire Protection and Prevention Act, SO 1997, c 4, s 9(2)(f) [ON FPPA].

²¹ OFM 2021, supra note 16.

²² Ibid at 8; AWI, 2021 supra note 3 at 3.

²³ Ibid.

²⁴ Fire statistics from the Office of the Fire Marshall that are only available upon request. Data from Quebec is accessible online.

The Minister of Public Safety’s most recent fire safety report includes a section on barn fires in response to multiple information requests received in recent years as well as the fact that barn fires result in disproportionately high levels of financial loss compared to other sectors. See MSP, Statistiques 2021, supra note 17 at 76.

²⁵ OFM 2021, supra note 16.

²⁶ Ibid at 5.

²⁷ MSP, Statistiques 2021, supra note 17 at 76.

²⁸ Ibid at 71.

entire building was on fire and 2,100 were killed in the flames.²⁹ This is supported by research conducted by Ontario’s Puslinch Fire Rescue Services in collaboration with the University of Waterloo, which found that a barn can be fully engulfed within four minutes.³⁰

Early detection systems and suppression methods are thus critical to mitigate damage when a fire begins. In practice, however, most farms lack adequate fire detection and suppression methods such as smoke, heat and carbon monoxide detection systems, fire extinguishers, or sprinkler systems. In Quebec, 68% of barn fires occur in buildings that are neither equipped with smoke detectors nor fire alarm systems (although this number has decreased over time from 75% between 2010-2016³¹).³² Moreover, among the buildings with smoke detectors installed, only 52% were working at the time of the fire compared to 74% for installed fire alarm systems.³³ Finally, 90% of buildings were not equipped with any fire suppression systems (e.g., sprinklers, fire extinguishers).³⁴

These deficiencies are exacerbated by challenges in obtaining rapid assistance from first responders. Rural fire services are often limited, relying on a mix of volunteer and full-time firefighters. 83% of firefighters in Canada are part-time volunteers and, of these, the total number is decreasing.³⁵ Fewer firefighters combined with greater distances between properties compared to dense urban environments mean longer response times. And when they do arrive, first responders may not be familiar with the design of barns or with proper animal handling techniques to evacuate animals safely. Moreover, if there is not already an emergency preparedness protocol in place, securing access to water sources to suppress the fire will be difficult. According to Humane Society International, on average 2-7 fire departments are called in to fight a barn fire, including neighbouring U.S. fire departments if the farm is located close to the border.³⁶

C. *Calculating the cost of barn fires*

In addition to the obvious animal welfare concerns, barn fires can have a significant financial and emotional toll. The experience of witnessing animals in distress can be traumatic, and the challenges associated with rebuilding after a disaster are numerous. As farms increase in size, farm buildings have also grown in size and value, housing more animals and more expensive equipment. From media reports alone, where financial loss estimates were provided, the top five financial losses for a single fire were \$15 million (Manitoba, 2019), \$7 million (Quebec, 2018), \$6 million (Ontario, 2018), \$4.6 million (Ontario, 2016) and \$4.5 million (Manitoba, 2017). Between 2014-2018, insurance claims for financial losses in Quebec amount to \$39.9 million per year.³⁷ The real cost is likely much higher because the total number of insurance claims made in the province reflects only 55% of all recorded fires. In Ontario, 931 barn fires were recorded between 2017-2021, of which 328 were in barns housing animals, resulting in \$310 million and \$130 million in cumulative losses respectively.³⁸

²⁹ Hank Daniszewski, “Second massive barn fire this week destroys facility near Parkhill”, Chatham Daily News (19 January, 2016), online: <<https://www.chathamdailynews.ca/2016/01/19/second-massive-barn-fire-this-week-destroys-facility-near-parkhill>>; AWI 2021, *supra* note 3.

³⁰ Ferrier, Melanie, “Electrical failure to blame for January 2016 Puslinch barn fire”, CBC News (23 December 2016), online: <<https://www.cbc.ca/news/canada/kitchener-waterloo/2016-puslinch-horse-barn-fire-caused-by-electrical-failure-1.3911013>>.

³¹ MSP *Statistiques 2021*, *supra* note 17 at 8.

³² *Ibid* at 79.

³³ *Ibid*.

³⁴ *Ibid* at 82.

³⁵ Avery Haines, “Fewer firefighters mean slower response times, jeopardizing lives”, CTV News (1 October 2022), online: <<https://www.ctvnews.ca/w5/fewer-firefighters-mean-slower-response-times-jeopardizing-lives-1.6090717>>; MSP *Statistiques 2021*, *supra* note 17 at 16 (85% in Quebec).

³⁶ HSI 2020, *supra* note 2 at 11.

³⁷ MSP *Statistiques 2021*, *supra* note 17 at 85.

³⁸ OFM 2021, *supra* note 16 at 1.

Barn fires also come at a cost to human health. In its national study of barn fires, Humane Society International tracked 30 human injuries and 3 human fatalities between 2015-2019.³⁹ Injuries include heart attacks, smoke inhalation, burns and heat stroke, nervous shock and even critical condition comas. The psychological toll of witnessing a fire, processing what has occurred, negotiating compensation with insurance companies, and maintaining business continuity can be overwhelming. In the weeks and months after the fire described above at the dairy farm in the Chaudière-Appalaches region, the father and son duo considered abandoning the 60-year-old business that had been handed down from previous generations.⁴⁰ The stress associated with barn fires was also recognized by Quebec's Food and Agricultural Marketing Board (*Régie des marchés agricoles et alimentaires du Québec*) in a decision authorizing a poultry farmer to sell his quota despite an industry-wide moratorium on sales due to his deteriorating mental health following a fire that killed his entire flock of 65,000 birds.⁴¹ Disputes with insurance providers who resist making certain payments under fire insurance policies are another source of stress, sometimes resulting in litigation.⁴²

Finally, barn fires generate two kinds of environmental costs. First, they contribute to air pollution, contamination from water runoff, and other environmental discharges or releases from burned materials.⁴³ Barn fires with animal fatalities also raise environmental concerns about storage, management and disposal methods of deadstock. Second, there is the wasted carbon footprint of meat that does not make its way into the food system. Intensive animal agriculture contributes to air pollution, fecal contamination of waterways, soil degradation, and more. According to Agriculture and Agri-Food Canada, 10% of anthropogenic greenhouse gas (GHG) emissions are from crop and livestock production.⁴⁴ This does *not* include emissions from fossil fuels or from fertilizer production, both of which are heavily relied upon in the animal agriculture industry. Moreover, a recent study found that methane emissions from animal agriculture in North America is likely 39-90% higher than what is reported.⁴⁵ Globally, meat and dairy production is set to surpass the oil industry as the world's biggest GHG-emitter.⁴⁶ Animal fatalities are thus not only tragic in themselves, but they undermine the utilitarian justification for eating meat at great environmental expense.

III. REGULATORY FRAMEWORK: FIRE SAFETY AND PREVENTION

In contrast to the rules and regulations surrounding the transportation and slaughter of animals, few requirements exist to prevent accidental deaths on the farm. The *Safe Food for Canadians Regulations* provides that animals who arrive at a slaughterhouse must be handled "in a manner that does not cause it avoidable suffering, injury or death" and that animals must not be exposed "to any condition that may cause such suffering, injury or death."⁴⁷ The Regulations establish several requirements for humane handling, including those with respect to ventilation, the provision of water and feed, areas of establishment and equipment,

³⁹ HSI 2020, *supra* note 2 at 17-27.

⁴⁰ LaPresse, *supra* note 1.

⁴¹ *Ferme avicole Hébert Ltée et Éleveurs de volailles du Québec* (14 août 2018), Décision 11440, RMAAQ.

⁴² See e.g., *Ferme Gérald Laplante & Fils Ltée. v Grenville Patron Mutual Fire Insurance Co.*, 2002 CanLII 45070 (ON CA); *Harpestad v Hughes Agencies Ltd.*, 2005 CanLII 54177 (SK PC).

⁴³ Margaret McNamee & Benjamin Truchot, *Environmental Impact of Fires in the Built Environment: Emission Factors* (Quincy, MA: Fire Protection Research Foundation, 2022) at iii.

⁴⁴ Agriculture and Agri-Food Canada, "Greenhouse gases and agriculture" (9 December 2022), online: Government of Canada <<https://agriculture.canada.ca/en/environment/greenhouse-gases>>.

⁴⁵ Mathew N Hayek & Scot M Miller, "Underestimates of methane from intensively raised animals could undermine goals of sustainable development" (2021) 16:063006 *Environmental Research Letters*.

⁴⁶ GRAIN & Institute for Agriculture and Trade Policy, "Emissions impossible: How big meat and dairy are heating up the planet" (2018), online: Grain <<https://grain.org/article/entries/5976-emissions-impossible-how-big-meat-and-dairy-are-heating-up-the-planet>>.

⁴⁷ SOR/2018-108, s128.

confinement and, significantly, the obligation to stun animals rendering them unconscious before they are killed.⁴⁸ Provinces also regulate the humane treatment of animals during slaughter when the meat is restricted to intraprovincial sales. Given the potential for extreme suffering when animals are killed, it is unsurprising that slaughter activities are highly regulated.⁴⁹ Animal transportation raises similar welfare concerns so the *Health of Animals Regulations* establishes requirements for ventilation, weather conditions, space allotments, and the provision of feed, safe water and rest.⁵⁰ What about welfare protections to prevent avoidable suffering, and more specifically, accidental deaths, *on the farm*?

Animals spend the majority of their lives on the farm, and yet, this is where regulatory oversight is minimal. Previous scholarship has documented a variety of ways that existing legislative frameworks enable or overlook animal suffering on the farm. This includes research into the exploitative property classification for animals⁵¹, the constitutionality of agricultural gag laws that aim to prevent undercover investigations of industrial animal agriculture⁵², the legitimacy of industry self-regulation of animal protection standards⁵³, agricultural exceptionalism and right-to-farm legislation⁵⁴, and missed opportunities to improve animal welfare following Quebec's 2015 legal recognition of animal sentience.⁵⁵ Beyond systemic oppression and daily welfare violations, less attention has been paid to the specific case of emergency preparedness and management. What obligations do farmers have to prevent fires or to protect their animals when disaster strikes? What obligations do they have to adopt fire safety and fire prevention protocols?

A. *National Model Codes*

Fire safety and fire prevention are responsibilities of the provincial governments. While specific requirements may vary, there is widespread reliance across the country on the guidelines set out by the Canadian Commission on Building and Fire Codes (CCBFC). Established by the National Research Council, the CCBFC develops and maintains National Model Codes and related guides, including the National Building Code of Canada (NBC), the National Fire Code of Canada (NFC) and the National Farm Building Code (NFBC). The NBC establishes minimum requirements for the design and construction of *new* buildings and the substantial renovation of existing buildings to address the following five objectives: safety, health, accessibility, fire and structural protection of buildings, and energy efficiency.⁵⁶ The NFC establishes

⁴⁸ *Ibid* at s129-136 & 141-144 (Note that ritual slaughter activities are exempt from the requirement to render an animal unconscious before it is bled).

⁴⁹ Whether these requirements are always followed is another question. See e.g. Anna Pippus, "How Law Fails Animals Farmed for Food" in Heather McLeod Kilmurray, Angela Lee, Nathalie Chalifour, eds, *Food Law and Policy in Canada*, (Toronto: Thomson Reuter, 2019) at 431-452.

⁵⁰ *Health of Animals Regulations*, CRC, c 296, Part XII. As with slaughter, whether the Regulations go far enough is contested. For example, see Andrew Stobo Sneiderman, "Clearly A Subjective Determination": Interpretations Of "Undue Suffering" At The Canada Agricultural Review Tribunal (2000-2019)" (2022) 53:2 *Ottawa Law Review* 439.

⁵¹ Maneesha Deckha, *Animals as Legal Beings: Contesting Anthropocentric Legal Orders*, (Toronto: University of Toronto Press, 2022).

⁵² Jodi Lazare, "Animal Rights Activism and the Constitution: Are Ag-Gag Laws Justifiable Limits?" (2022) Osgoode Hall LJ [forthcoming in 2022].

⁵³ Peter Sankoff, "Canada's Experiment with Industry Self-Regulation in Agriculture: Radical Innovation or Means of Insulation?" (2019) 5 *Can J Comp & Contemp L* 29; Anna Pippus, "The Fox Regulating the Henhouse: How the Law Fails Animals Farmed for Food" in Heather McLeod-Kilmurray, Angela Lee, Nathalie Chalifour, eds, *Food Law and Policy in Canada*, (Toronto: Thomson Reuter, 2019) at 431.

⁵⁴ Jessica Eisen, "Down on the Farm: Status, Exploitation, and Agricultural Exceptionalism", in Charlotte E. Blattner, Kendra Coulter, and Will Kymlicka, eds, *Animal Labour: A New Frontier of Interspecies Justice?* (Oxford: Oxford Academic, 2019) at p.139; Sarah Berger Richardson & Laura Alford, "Right-to-Farm Legislation in Canada: Exceptional Protection for Standard Farm Practices" (2018) 50:1 *Ottawa Law Review* 131.

⁵⁵ Michaël Lessard, "Can Sentience Recognition Protect Animals? Lessons from Québec's Animal Law Reform" (2021) 27:1 *Animal Law Review* 57.

⁵⁶ Canadian Commission on Building and Fire Codes, *National Building Code 2020 Volume 1*, 15th edition (2022) *National Research*

minimum safety requirements for fire protection and fire prevention in the ongoing maintenance of buildings and facilities as well as the conduct of activities that can cause fire safety hazards.⁵⁷ For its part, the NFBC provides for relaxations of the National Building Code requirements to address the unique needs of farm buildings in the agricultural sector.⁵⁸

On their own, the codes have no legal authority unless they are adopted by a provincial or territorial governments who have the power to regulate building design and construction within their jurisdictions.⁵⁹ National Model Codes are updated every five years. The most recent update to the National Model Codes was in 2020 (released in 2022). However, the NFBC was not updated during this latest round of revisions and it has not been updated since 1995. Increasingly, its provisions conflict with the NBC 2020 and NFC 2020. It is beyond the scope of this paper to provide an overview of the contents of the National Model Codes. The Codes are highly technical documents and businesses frequently rely on specialist code consultants (generally engineers or architects) to interpret them. For the purposes of this paper, this section will center on requirements set out in the NBC and NFC for fire detection systems and suppression methods.

The NBC establishes guidelines for fire safety and fire protection features incorporated in a building at the time of its original construction. Guidelines are future oriented and not intended to be enforced retrospectively to existing buildings.⁶⁰ In response to concerns about barn fires in the agricultural sector, the 2020 edition of the NBC introduced significant changes for large farm buildings, including new requirements for fire alarms and smoke detectors. The NBC applies to animal housing facilities⁶¹ that are more than 3 storeys in building height and more than 600m² in building area.⁶² Smaller animal housing facilities continue to be subject to the relaxed requirements of the NFBC 1995, which are discussed below.

The NBC contains a section with guidelines for farm buildings, including low-human occupancy animal housing facilities.⁶³ Its objective is to limit the probability that a person will be exposed to an unacceptable risk of injury or damage due to fire.⁶⁴ Preventing injury for animals is not an objective. Neither are farm buildings required to be equipped with automatic sprinklers. However, buildings that are sprinklered may be exempt from requirements to install a fire alarm system. Animal housing facilities that are not sprinklered must install a fire alarm system if they are more than 1 storey in building height, have a basement used for a purpose other than housing service equipment (such as liquid manure), or have an occupant load of more than 150, where occupant load refers to the number of *persons* in the building as opposed to animals.⁶⁵ One-storey animal housing facilities are thus not required to install sprinklers or fire alarm systems. Still, the NBC does establish requirements for emergency lighting, portable fire extinguishers, means of egress including exit access and storage of hazardous substances, processes and equipment.

Council at v, online: <<https://nrc-publications.canada.ca/eng/view/ft/?id=515340b5-f4e0-4798-be69-692e4ec423e8>>. [NBC 2020],

⁵⁷ Canadian Commission on Building and Fire Codes, *National Fire Code 2015 Volume 1*, 10th edition (2020) *National Research Council*, online: <https://publications.gc.ca/collections/collection_2019/cnrc-nrc/NR24-27-2018-eng.pdf> [NFC 2020]. The relationship between the NBC and the NFC is described in the *National Building Code 2020* at vi.

⁵⁸ Canadian Commission on Building and Fire Codes, *National Farm Building Code 2020 Volume 1*, 8th edition (1995) *National Research Council*, online: <<https://nrc-publications.canada.ca/eng/view/ft/?id=8d848d71-3fc2-4e1b-b0c1-c45d15a79a46>> [NFBC 1995].

⁵⁹ NBC 2020, *supra* note 56.

⁶⁰ NFC 2020, *supra* note 57, at A.1.1.1.1.(1).

⁶¹ Animal housing facilities are classified as Group G, Division 2 (Agricultural occupancies not elsewhere classified in Group G).

⁶² NBC 2020, *supra* note 56, at Division A 1.1.1.1.

⁶³ *Ibid* at Division B 2.1.2.1.

⁶⁴ *Ibid* at Division A 2.2.1.1.

⁶⁵ *Ibid* at Division B 2.2.3.1; “occupant load” defined in Division A 1.4.1.2.

The NFBC provides relaxations of the requirements set out in the NBC based on the low human occupancy load of farm buildings, as well as their remote locations.⁶⁶ The NFBC aims to ensure the protection of persons in farm buildings.⁶⁷ The guidelines are considerably less detailed than the NBC, coming in at 39 pages compared to 1,530. Part 3 of the NFBC addresses fire safety and includes provisions related to the prevention of electrical installations against rodent damage, the storage of fuel tanks outdoors or in a separate building from one housing animals, minimum number of exits, and others. Fire detection systems or suppression methods are not mentioned.

Lastly, like the NBC, the objective of the NFC is to ensure the safety of persons and the protection of buildings, with no mention of non-human animals such as farm animals. It also explicitly excludes farm buildings from the objective of limiting the probability that “as a result of specific circumstances related to the building or facility, the building or facility will be exposed to an unacceptable risk of damage due to fire.”⁶⁸ At the same time, the 2020 updates to the NFC introduce new technical requirements for farm buildings. These include electrical system compliance with the Canadian Electrical Code, Part I as well as inspections every three years for farm buildings greater than 600m² in building area or greater than 3 storeys in building height.⁶⁹ Where fire alarm and sprinkler systems are installed, they must be in conformance with the NBC. However, there are no provisions requiring them for animal housing facilities.

B. Examples of provincial regulatory requirements

Although National Model Codes are not legally binding, most provincial regulations incorporate them with few amendments. Nevertheless, here as well, principles of agricultural exceptionalism result in multiple exemptions for animal housing facilities. In Ontario, provincial requirements concerning fire prevention are laid out in the *Fire Protection and Privacy Act*⁷⁰, the *Fire Code*⁷¹, the *Building Code Act*⁷² and its *Regulation*⁷³ and the *Electrical Safety Code* under the *Electricity Act*.⁷⁴ As with the National Model Codes, Ontario’s *Building Code* sets out requirements for new buildings or buildings undergoing significant renovations. It does not monitor ongoing activities on the farm. This falls under the purview of the *Fire Protection and Privacy Act* and its associated *Fire Code*. Notably absent from the *Fire Protection and Privacy Act* is any reference to animal health. The purpose of fire safety inspections is described in the Act as serving to identify risks that would “endanger the health and safety of any person or the quality of the natural environment.”⁷⁵ Although s. 19 of the Act provides that an inspector (i.e., the Fire Marshal, their assistant or a fire chief) “may, without a warrant, enter and inspect land and premises for the purposes of assessing fire safety”, subsection 1.3.1. of the accompanying *Fire Code* exempts farm buildings with low-human occupancy from the requirements of the Code.⁷⁶ Instead, farm buildings must comply with the requirements set out in the NFBC 1995.

In Quebec, regional authorities establish their own fire safety standards for the construction and renovation of farm buildings along with ongoing inspection. These standards are informed by the

⁶⁶ NFBC 1995, *supra* note 58.

⁶⁷ *Ibid* at Part 1 1.1.1.1.1.

⁶⁸ NFC 2020, *supra* note 57, at Division A 2.1.1.2.2 & 2.2.1.1.

⁶⁹ *Ibid* at Division B 2.14.1

⁷⁰ ON FPPA, *supra* note 20.

⁷¹ O Reg 213/07.

⁷² *Building Code Act*, SO 1992, c 23.

⁷³ O Reg 332/12.

⁷⁴ O Reg 164/99.

⁷⁵ ON FPPA, *supra* note 20 at 18, emphasis added.

⁷⁶ For the purposes of the code, low-human occupancy is defined as not more than one person per 40m² of floor area.

National Model Codes, as well as the provincial *Fire Safety Act*⁷⁷, the *Building Act*⁷⁸ and its regulations (specifically, the *Construction Code*⁷⁹ and *Safety Code*⁸⁰) and *Petroleum Products Act*⁸¹. The *Fire Safety Act* provides that regional authorities must “establish a fire safety cover plan determining fire protection objectives for their entire territory.”⁸² Fire safety cover plans include the identification of fire risks and an inventory and evaluation of fire protection measures, resource allocation and infrastructures and water sources available for fire safety purposes.⁸³ The *Fire Safety Act* does not lay out any specific requirements for agricultural buildings. The extent to which barns are thus included or exempt from prevention strategies will thus depend on the deliberations of each regional authority. While major municipalities tend to adopt provisions set out in the NFC, there is no requirement for them to do so. Analyses of different fire safety cover plans across the province reveal numerous gaps and deficiencies.⁸⁴

Other provinces adopt the National Model Codes in their entirety. For example, British Columbia’s *Building Code*⁸⁵ and *Fire Code*⁸⁶ are both established by adopting the NBC 2015 and the NFC 2015, respectively. With the publication of the National Model Codes 2020, the BC Codes will need to be updated and the next edition is anticipated to be adopted by mid-2023, subject to Ministerial approval.⁸⁷ Currently, farm buildings are excluded from the application of the BC Codes. It remains to be seen if the next edition will incorporate the changes introduced by the National Model Codes 2020. Similarly, Saskatchewan adopts the National Model Codes as the minimum standard for the construction of buildings and for the fire safe operation of buildings.⁸⁸ As in British Columbia, the provisions of the province’s *The Construction Codes Act*⁸⁹ and *The Fire Safety Act*⁹⁰ will need to be updated to reflect the changes in the 2020 edition of the National Model Codes. Again, the question is whether current farm building exemptions and references to the NFBC 1995 will be abandoned.

IV. EMERGENCY PREPAREDNESS AND MANAGEMENT

Beyond preventing, detecting and suppressing fires, emergency protocols to evacuate and care for animals are necessary to minimize injury and death. This is a dimension that is altogether absent from the National Model Codes or provincial legislation. Nevertheless, there are signs this might be changing as new requirements are slowly introduced into the National Farm Animal Care Council (NFACC) codes of

⁷⁷ QC *Fire Safety Act*, *supra* note 18.

⁷⁸ QC *Building Act*, CQLR c B-1.1, r 0.01.01.

⁷⁹ *Ibid* at c B-1.1, r 2.

⁸⁰ *Ibid* at c B-1.1, r 3.

⁸¹ *Petroleum Products Act*, CSQ, c P-30.01

⁸² QC *Fire Safety Act*, *supra* note 18, art 8.

⁸³ *Ibid* at s 10.

⁸⁴ Grecia Esparza *et al*, “Les incendies dans les bâtiments agricoles au Québec” (17 January 2020) *Communauté droit animalier Québec*, online: <https://daq.quebec/wp-content/uploads/2020/01/Volume-4-n°-1_VD_incendies-batiments-agricole_article_PUBLIÉE.pdf>.

⁸⁵ British Columbia Building Safety Standards, *British Columbia Building Code 2018* (2018), online: <<https://free.bcpublications.ca/civix/content/public/bcbc2018/?xsl=/templates/browse.xsl&xsl=/templates/browse.xsl>>.

⁸⁶ British Columbia Building Safety Standards, *British Columbia Fire Code 2018* (2018), online: <<https://free.bcpublications.ca/civix/content/public/bcfc2018/?xsl=/templates/browse.xsl&xsl=/templates/browse.xsl>>.

⁸⁷ Government of British Columbia, “BC Codes”, *British Columbia*, online: <<https://www2.gov.bc.ca/gov/content/industry/construction-industry/building-codes-standards/bc-codes>>.

⁸⁸ *The Construction Codes Act*, SS 2021, c 9.

⁸⁹ *Ibid*.

⁹⁰ *The Fire Safety Act*, SS 2015, c F-15.11.

practice.⁹¹ The NFACC is a not-for-profit corporation that brings together diverse stakeholders to develop national guidelines for the care and handling of farm animals.⁹² The NFACC produces 15 animal-specific codes as well as a code of general application for transportation. As with the National Model Codes, the NFACC Codes of Practice have no legal authority on their own. They may, however, be incorporated by reference into provincial animal welfare legislation.

Research and empirical field reports describe a range of animal behaviours that can make fire evacuations difficult.⁹³ In many cases, animals will instinctively remain in familiar surroundings and resist evacuation efforts, even returning to the burning building from which they escaped. For example, in the equine industry, it is recommended to blindfold horses during evacuation to counter this instinct.⁹⁴ Research suggests that animals who are not habituated to pasture will be more reluctant to leave the barn on their own, requiring more time and human intervention to exit.⁹⁵ Even animals that are habituated to pasture will only exit via known openings. Given the number of animals in Canada who are raised in confined indoor spaces, it is safe to say that the majority of farm animals are non-habituated to pasture and thus at higher risk of injury or death.

In their research into best practices for the evacuation of cattle during night fires, Diel *et al.* cite Grandin, who established decades ago the tendency of cattle to opt for “an unpleasant but known option rather than one unknown to them.”⁹⁶ Cattle adjust to changes in lighting more slowly than humans and have worse depth perception. In the same way that they require more time to establish safe footing and a clear line of sight to remain calm in slaughterhouses, emergency evacuation plans for fires must account for these behavioural concerns. Similarly, the presence of distractions such as emergency response vehicles, first responders, bright lights and loud noises can all hinder the evacuation of cattle from a burning building. Although this research focuses specifically on evacuation strategies for cattle, the same reflexes will apply to other farm animals as well.

Despite the demonstrated needs of farm animals in the case of a fire, provincial animal welfare legislation in Canada exempts farm animals from the standards of care that apply to other animals. These exemptions apply to agricultural activities that are carried out “in accordance with generally recognized rules” or “the reasonable and generally accepted practices” of the industry. For example, in British Columbia, the prohibition against causing an animal to be in distress does not apply if “the person is an operator and the distress results from an activity that is carried out in accordance with the prescribed standards of care that apply to the regulated activity in which the operator is engaged.”⁹⁷ In Saskatchewan, an animal is not considered to be in distress within the meaning of the *Animal Protection Act* if it is handled in a manner consistent with what is prescribed in a standard, code of practice or guideline or in accordance with “generally

⁹¹ National Farm Animal Care Council (NFACC), “Codes of Practice for the care and handling of farm animals”, online: *National Farm Animal Care Council* <<https://www.nfacc.ca/codes-of-practice>>.

⁹² *Ibid.*

⁹³ Florian Diel *et al.*, “Exploring the Evacuation of Dairy Cattle at Night in Collaboration with the Fire Brigade: How to Prepare Openings for Swift Rescue in Case of Barn Fire” (2022) 12 *Animals* 1344 at 2 [Diel *et al.*, 2022]. See also Vermont Barn Fire Task Force, “Evacuation of Livestock During a Fire”, online: *Vermont Barn Fire Prevention Task Force* <<https://ocgov.net/sites/default/files/E911/Agriculture%20Emergencies/Evacuation%20of%20Livestock%20During%20a%20Fire%208-30-10%20Final.pdf>>; Jori William Miller, “Barn Fire Prevention” (1995) 15:4 *J Equine Veterinary Sci* 162.

⁹⁴ Rebecca Gimenez *et al.*, “A Review of strategies to prevent and respond to barn fires affecting the horse industry” (2008) in *Proceedings of the 54th Annual Convention of the American Association of Equine Practitioners* (San Diego, 6-10 December 2008).

⁹⁵ Diel *et al.*, 2022, *supra* note 93 at 2.

⁹⁶ *Ibid.* at 2, referencing Temple Grandin *et al.*, “The reluctance of cattle to change a learned choice may confound preference tests” (1994) 39 *Applied Animal Behav Sci* at 21-28.

⁹⁷ *Prevention of Cruelty to Animals Act*, RSBC 1996, c 372, at s. 24.02.

accepted practices of animal management.”⁹⁸ Similar provisions apply elsewhere in Canada, including Quebec⁹⁹ and Ontario, where agricultural activities are also exempt from general inspection powers.¹⁰⁰

What constitutes a generally accepted practice in the agricultural sector? One indication is compliance with the NFACC Codes of Practice. Until recently, emergency preparedness was barely mentioned. Structural building requirements to prevent fires are absent. Most codes do not require fire detection systems or suppression methods or evacuation protocols, instead merely recommending installing and maintaining fire extinguishers.¹⁰¹ However, in 2022 and 2023, the codes of practice for goats and dairy cattle, respectively, were updated and both now explicitly address evacuation protocols to provide for animal welfare in the event of an emergency.¹⁰² For goats, this includes the requirement that emergency plans be drafted with specific actions and procedures that are communicated to employees and family members, that electrical connection be hard-wired, that fire extinguishers be available, that heat lamps be kept at a safe distance from combustible materials, and that producers keep enough feed and water to meet the needs of their goats for 72 hours. The establishment of an evacuation plan remains a recommended practice only. For dairy cattle, the updated code which comes into effect in April 2024, includes recommendations to build and/or renovate facilities to facilitate emergency evacuation, to develop an emergency evacuation plan, and the installation of fire alarm systems and fire extinguishers.¹⁰³

The NFACC updates are a step in the right direction, but fall short of the recommendations established by several international organizations. In its *Terrestrial Animal Health Code*, the World Organisation for Animal Health (OIE) provides that plans should be in place to minimize and mitigate the effect of disasters such as fires, and that such plans should include evacuation procedures for cattle and pigs.¹⁰⁴ The American National Fire Protection Association establishes a requirement that all animal housing facilities adopt disaster/emergency management programs and conduct emergency/disaster drills in collaboration with local authorities.¹⁰⁵ The Confederation of Fire Protection Associations in Europe (CFPAE) similarly recommends well planned evacuation measures in its guidelines on fire safety in farm buildings.¹⁰⁶ Currently, such practices are far from the norm in Canada. What would it take for this to change?

⁹⁸ *The Animal Protection Act*, 2018, SS 2018, c A-21.2 at s. 2(3); see also s. 4(3)

⁹⁹ *Animal Welfare and Safety Act*, b-3.1 at art 7.

¹⁰⁰ *Provincial Animal Welfare Services Act*, 2019, S.O. 2019, c. 13 s. 13(2) & 15(4) & 24(c)

¹⁰¹ See e.g. National Farm Animal Care Council, “Code of Practice for the Care and Handling of Hatching Eggs, Breeders, Chickens and Turkeys, s. 5.4 *Emergency Management and Preparedness*”, online: *National Farm Animal Care Council* <<https://www.nfacc.ca/codes-of-practice/chickens-turkeys-and-breeders>>; NFACC, “Code of Practice for the care and handling of farm animals – Pigs”, online: *National Farm Animal Care Council* <<https://www.nfacc.ca/codes-of-practice/pigs>>

¹⁰² National Farm Animal Care Council, “Code of Practice for the care and handling of farm animals - Dairy Cattle” (2023), online: *National Farm Animal Care Council* <<https://www.nfacc.ca/codes-of-practice/dairy-cattle>>; NFACC, “Code of Practice for the Care and Handling of Goats” (2022), online: *National Farm Animal Care Council* <<https://www.nfacc.ca/goats-code-of-practice#Sec3Goats>>.

¹⁰³ *Ibid* at s 2.13 *Emergencies and Safety*.

¹⁰⁴ See World Organisation for Animal Health, “Animal Welfare and Dairy Cattle Production Systems: Chapter 7.11 of the *Terrestrial Animal Health Code*” (2021) at s 7.11.7 n 16, World Organisation for Animal Health “Animal welfare and pig production systems: c 7.13 of the *Terrestrial Animal Health Code*” (2021) at s 7.13.26, online: <<https://www.oie.int/en/what-we-do/standards/codes-and-manuals/>>.

¹⁰⁵ National Fire Protection Association, “National Fire Protection Association Standard 150: Fire and life safety in animal housing facilities” at 4.3.4.4.3.5, online: <<https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=150>> [NFPA].

¹⁰⁶ The Confederation of Fire Protection Association Europe, “Fire Protection in Farm Buildings: CFPA-E Guideline No 17:2015 F” (2015), online: <https://cfpa-e.eu/app/uploads/2022/04/CFPA_E_Guideline_No_17_2015_F.pdf> [CFPAE].

V. PRIVATE GOVERNANCE SOLUTIONS

The 2020 updates to the National Model Codes are illustrative of increasing, albeit inadequate, interest in improving fire safety in the agricultural sector. However, as the previous section explained, the Codes themselves are not binding, provisions related to building materials and design do not apply retroactively, fire alarm systems and sprinklers are not required (with the exception of portable fire extinguishers in limited situations), and NFACC emergency planning and evacuation protocols remain limited. In the absence of binding legislation to minimize injury and death of farm animals, this section considers the role that non-state actors (insurers and producer associations) can play in improving fire safety and fire prevention on the farm.

A. *Insurance providers*

The purpose of insurance is to transfer risk as well as to compensate people when risks materialize. Insurance is created by contract and contracts between insurer and insured are meant to balance the interests of those who may suffer a loss and those whose role is to provide insurance against that loss.¹⁰⁷ Farm insurance is one of the most specialized branches of insurance law. The size and scale of agricultural operations can vary significantly, and the associated risks are equally varied. In general, farm insurance refers to insurance policies covering residential and/or commercial property, equipment, machinery, crops, feed and livestock as well as coverage for business interruption and liability.¹⁰⁸ In the case of animal agriculture, animals can be insured under a general farm policy or through a more tailored livestock or poultry insurance package. They can be insured individually (usually the case with high-value breeding animals) or by the herd (most common) and coverage can include mortality insurance, limited or named perils mortality insurance, major medical/surgical coverage and health insurance.¹⁰⁹ Coverage may be tailored according to the species of animal, or the size of the operation. There are many options from which to choose. For instance, limited or named perils mortality insurance will provide compensation in the case of accidental death but not from old age or illness. Depending on the value of the animal, additional coverage will be needed for medical treatment for life or health threatening situations.

An analysis of nearly 20,000 business insurance claims between 2017 and 2021 found that fire incidents in Canada account for 38% of the value of losses (\$1.82 billion in value).¹¹⁰ Insurance providers have an interest in loss control to reduce the likelihood of claims against an insurance policy. This is as true in the agricultural sector as in other sectors. To the extent that insurers can tie compensation to compliance with fire safety and fire prevention strategies, producers may be encouraged or even required to take proactive

¹⁰⁷ For a discussion of the nature and purpose of insurance law, see e.g. Sara L. Seck & Craig Brown, “Insurance Law Principles in an International Context: Compensating Losses caused by Climate Change” (2013) 50:3 *Alberta Law Review* 541 at 545-547 [Seck & Brown, 2013]; Timothy D. Lytton, “Using Insurance to Regulate Food Safety: Field Notes from the Food Produce Sector” (2022) 52:2 *N.M.L. Rev* 282 at 288-290 [Lytton, 2022].

¹⁰⁸ International Risk Management Institute, Inc. “Farmowners Insurance” *International Risk Management Institute Inc.*, online: *International Risk Management Institute* <<https://www.irmi.com/term/insurance-definitions/farmowners-insurance>>; The Co-operators, “Coverage for your farm property and contents,” online: *The Co-Operators* <<https://www.cooperators.ca/en/insurance/farm/farm-property-contents-insurance.aspx>>; Westland Insurance, “Farm Insurance,” online: *Westland Insurance* <<https://www.westlandinsurance.ca/business/farm/#:~:text=Farm%20liability%20encompasses%20both%20business,a%20result%20of%20your%20operations.>>

¹⁰⁹ Oegema, Nicholson & Associates, “Livestock Insurance,” online: *Oegema, Nicholson & Associates*, <<https://www.ona.ca/farm-insurance/livestock/>>; Western Financial Group, “Why Your Farm Needs General Livestock Insurance”, online: *Western Financial Group* <<https://westernfinancialgroup.ca/Why-Your-Farm-Needs-General-Livestock-Insurance>>.

¹¹⁰ Allianz Global Corporate & Specialty, “Global Claims Review: 2022”, online: *Allianz Global Corporate & Specialty* <<https://www.agcs.allianz.com/content/dam/onemarketing/agcs/agcs/reports/AGCS-Global-Claims-Review-2022.pdf>>. (Canadian dollar amount converted from Euro (€1.216bn) by author)

steps not otherwise mandated by law to reduce their risk. Adopting a carrot approach, insurance companies can lower premiums if extra fire safety precautions are integrated into the construction of a new building. They can also provide incentives to equip farm buildings with sprinkler systems, fire and smoke detection systems and alarms, or to adopt structural changes such as installing firewalls, storing feed in separate buildings, or maintaining a water source nearby. For example, several Canadian insurance providers offer a cost-sharing incentive to install electrical fault detection systems to reduce the risk of barn fires caused by electrical failures.¹¹¹ Alternatively, adopting a stick approach, insurers can exclude certain properties or activities from compensation or refuse coverage entirely for businesses that do not comply with minimum standards. For example, given the replacement costs, insurance policies may not cover century-old farm buildings unless the building has already undergone significant structural upgrades to bring it in line with current building code requirements.¹¹²

Using insurance as a governance tool presents opportunities for barn fire prevention, but also raises dilemmas that merit further inquiry. One of the principles of insurance law is fortuity – the principle that insurers are able to provide affordable protection against losses because they provide similar protection to multiple customers knowing that only a fraction will suffer loss and make a claim.¹¹³ The principle of fortuity is based on a presumed randomness of loss. Insurance is not intended to compensate for losses brought about deliberately by the insured person, nor to compensate where loss is inevitable. What happens then when generally accepted practices are known to be deficient and where loss claims are steadily increasing? The availability of insurance can relieve the insured of the burden of financial loss, thereby eliminating an important incentive for them to take preventive measures.¹¹⁴ Moreover, how should insurers respond to the fact that those who face the greatest risk are animals who cannot take precautions themselves or consent to it? Without the recognition of legal personhood for farm animals, their deaths are calculated as property damage and/or compensable business interruption losses. Their well-being has no intrinsic value and their market value is an entirely commercial transaction.

A related problem relates to liability insurance. Barn fires can be extraordinarily destructive, but given their location, they rarely impact neighbouring properties. Whereas insurers may have an incentive to regulate risks that are harmful to third parties, such as in the case of illness caused by pollution or the consumption of contaminated foods, animals lack standing to claim they were owed a duty of care in the first place, or that such a duty was breached. This means that insureds will rarely be pursued for compensation for loss suffered by a third party. In the absence of the threat of litigation, insurers lack an important justification that exists elsewhere to regulate insured activities more strictly.

Ultimately, the question boils down to what is an acceptable risk in the agricultural sector. More research is needed to determine how insurers calculate the risk of loss claims, and the randomness of the risk among those insured. In theory, insurers will respond to a greater likelihood of potential loss by either limiting coverage through exclusions or increasing premiums.¹¹⁵ In practice, it is unclear whether producers are being forced to change their practices to maintain coverage under existing farm insurance policies.

The appeal of insurance as regulation is that it fills a gap where government is reluctant or unable to intervene. Insurance might not be the best option. Indeed, scholarship has begun to question the limits of

¹¹¹ PrevTech Innovations Inc., “Co-operators partners with PrevTech Innovations to offer new farm fire prevention program”, *Cision* (2 November 2021), online: <<https://www.newswire.ca/news-releases/co-operators-partners-with-prevtech-innovations-to-offer-new-farm-fire-prevention-program-813322516.html>> ; Trillium Mutual Insurance Company, “PrevTech Program” (2023), online: *Trillium Mutual Insurance Company* <<https://trilliummutual.com/risk-management/prevtech/>> ; Promutuel, “Farm insurance to look after your agricultural business”, online: *Promutuel* <<https://www.promutuellaassurance.ca/en/farm-insurance>>

¹¹² See e.g. Luke Hendry, “Barn fire a cautionary insurance tale for all property owners” *The Intelligencer* (10 September 2021), online: <<https://www.intelligencer.ca/news/barn-fire-a-cautionary-insurance-tale-for-all-property-owners>>.

¹¹³ Seck & Brown, 2013, *supra* note 107 at 546.

¹¹⁴ Lytton, 2022, *supra* note 107 at 288.

¹¹⁵ Seck & Brown, 2013, *supra* note 107 at 547.

regulation by insurance, noting, among other things, that insurers fail to regulate risk in socially beneficial ways, they increase risk by promoting demand for their coverage, and do little to induce risk mitigation despite claims to the contrary.¹¹⁶ Moreover, private governance should not serve to absolve the state from its obligation to ensure that all animals are housed in safe and secure environment. Nevertheless, insurance law represents one possible avenue for rapid implementation of improved fire safety and fire prevention requirements.

B. Supply management and commodity-based producers associations

In addition to insurers, commodity-based producer associations can promote fire safety and prevention by adopting mandatory requirements for their membership. Unlike insurance contracts that vary based on individual risk assessments and the ability/willingness to pay, industry-wide standards apply to all producers. This has the advantage of leveling the playing field between producers who may incur expenses to upgrade their facilities. Such an approach would work especially well for supply-managed commodities, such as eggs, poultry, turkey and milk.

Under Canada's supply management system, production is controlled nationally through a quota system, and import controls. Provincial boards and commissions establish farm gate prices to ensure stable producer pricing. Supply management is often critiqued as trade-distorting and a form of protectionist agricultural policy that negatively impacts Canada in trade negotiations¹¹⁷ as well as lower-income households due to price controls.¹¹⁸ On the other hand, supply management is an example of highly effective cooperative federal/provincial governance where national and provincial agencies collaborate thanks to a shared commitment to the marketing system. The *Farm Products Agencies Act*¹¹⁹ and the *Canadian Dairy Commission Act*¹²⁰ establish the Farm Products Council of Canada (previously the National Farm Products Marketing Council) and the Canadian Dairy Commission, respectively. The Farm Products Council of Canada in turn supervises four national marketing agencies: Egg Farmers of Canada, Turkey Farmers of Canada, Chicken Farmers of Canada, and the Canadian Hatching Egg Producers. In addition, each province has its own boards, commissions and supervisory agencies. Together, these federal and provincial bodies regulate and monitor all activities related to the production and marketing of supply managed products in Canada.

Although supply management is focused on production discipline, import controls and price stabilization, each commodity is subject to additional rules and regulations that could conceivably be expanded to include barn fire prevention. For example, all chicken producers in British Columbia are subject to the BC Chicken Marketing Board's *General Orders*, which include compliance with food safety, animal care and welfare protocols, and applicable provincial occupational health and safety requirements.¹²¹ The rules also establish minimum floor space requirements.¹²² Meanwhile, in Quebec, the *Producteurs d'oeufs d'incubation du Québec* (Hatchery Egg Producers of Quebec) requires producers to confirm their adherence to a policy of animal welfare.¹²³ National agencies also establish standards that are enforced uniformly across the country

¹¹⁶ See Kenneth S. Abraham & Daniel B. Schwarcz, "The Limits of Regulation by Insurance" (2022) 98:1 Ind LJ 215 at 218.

¹¹⁷ See e.g. G. Cornelis van Kooten, "Reforming Canada's Dairy Sector: USMCA and the Issue of Compensation" (2020) 42:3 Applied Economics Perspectives and Policy 542

¹¹⁸ See e.g. Ryan Cardwell, Chad Lawley, and Di Xiang, "Milked and Feathered: The Regressive Welfare Effects of Canada's Supply Management Regime" (2015) 41:1 Canadian Public Policy 2015 1.

¹¹⁹ *Farm Products Agencies Act*, R.S.C. 1985, c. F-4.

¹²⁰ *Canadian Dairy Commission Act*, R.S.C. 1985, c. C-15.

¹²¹ BC Chicken Marketing Board, *General Orders* (2011), Part 32, online: <<https://bcchicken.ca/wp-content/uploads/2023/04/2023-04-03-BCCMB-GENERAL-ORDERS-Aug-26-2011.pdf>> [BCCMB *General Orders*]

¹²² *Ibid*, Part 33.

¹²³ *Règlement sur les conditions de production et de conservation à la ferme et sur la qualité des oeufs de consommation*, CQLR 2022, c M-35.1, r. 230 at s. 44.13 & Appendix 3.

through their corresponding provincial agencies. For example, Eggs Farmers of Canada has an on-farm food safety program called Start Clean-Stay Clean® to which every egg farmer in Canada must comply to maintain their Egg Quality Assurance™ certification.¹²⁴

What makes these rules impactful is that they apply to everyone. This has the result of changing the definition of “generally recognized rules” or “the reasonable and generally accepted practices” of the industry. It also establishes penalties for non-compliance. For example, the BC Chicken Marketing Board’s *General Orders* empower the Board to refuse to allocate quota, to reduce or refuse to increase or even cancel quota in the event of non-compliance.¹²⁵ This is not a negligible threat. Quota is a significant asset for supply managed businesses, worth over \$5 billion in British Columbia in 2021 (and close to \$43 billion across Canada).¹²⁶ Producers do not want to jeopardize their quota and will work hard to remain in good standing with their respective marketing boards.

Finally, even outside of supply-managed commodities, producer associations can establish marketing requirements within their sector. Quebec is a good example of this, where the *Régie des marchés agricoles et alimentaires du Québec* (RMAAQ) oversees the development of commodity-specific regulations.¹²⁷ Agricultural law in Quebec provides that producers can unionize by commodity. Once they do, they must establish a marketing plan (*plan conjoint*) and adopt regulations that apply to all producers of that commodity. Marketing plans currently exist for 25 agri-food products, including all sectors in which animals are raised for meat. While the RMAAQ is responsible for publishing each association’s rules and resolving disputes between individual producers and their respective associations, the rules themselves are privately determined. Producer associations represent their constituents. They are non-governmental, private actors. They create and amend their regulations to facilitate and strengthen the sale of their products. Consumer pressure or commitments of major retailers to improve animal welfare can therefore push producer associations to implement changes to maintain or expand their market share.

This brief overview of commodity-specific rules in the agricultural sector suggests that national and provincial marketing agencies could impose fire safety requirements to address gaps in existing legislation. The establishment of a fire safety program by Chicken Farmers of Canada alone could be an effective way of implementing rapid change given that the majority of barn fire fatalities involve chickens. Moreover, tailoring rules to different commodities could be a more efficient approach than imposing one-size-fits-all requirements across the agricultural sector. The risks and challenges associated with fire suppression and evacuation will vary by species. Taking these into consideration will result in adaptive measures that can be more easily justified to the producers who are asked to implement them.

VI. CONCLUSION

An oft quoted line from Samuel Taylor Coleridge’s 18th century poem, *The Rime of the Ancient Mariner* is “Water, water every where, / Nor any drop to drink.” In the agricultural sector, one could reformulate the phrase as follows: “Guidelines and recommendations everywhere, / Nor anything to enforce.” There is no shortage of information made available to farmers who want to learn more about best practices in barn fire prevention.¹²⁸ In addition to the National Model Codes, and provincial resources, international organizations

¹²⁴ Egg Farmers of Canada, “It starts with egg farmers: How Start Clean-Stay Clean® supports on-farm food safety” (February 22, 2021) online: <https://www.eggfarmers.ca/2021/02/start-clean-stay-clean-supports-food-safety/?_gl=1*1nx70kb*_ga*NzAzNDc4OTI2LjE2ODI4MTI1ODk.*_ga_RGV2DFSR3D*MTY4Mjg4MjU4OS4xLjAuMTY4Mjg4MjU4OS4wLjAuMA>.

¹²⁵ BCCMB *General Orders*, *supra* note 121 at Part 52.

¹²⁶ Statistics Canada, “Balance sheet of the agricultural sector as at December 31st,” Table 32-10-0056-01 (database), accessed 29 April 2023.

¹²⁷ *Act respecting the marketing of agricultural, food and fish products*, CQLR 1992, c M-35.1 at s. 1,4, & 5.

¹²⁸ See e.g. Government of British Columbia (n.d.), “Emergency Planning Workbook for B.C. Dairy Producers” (2020), online: BC

such as the NFPA and CFPPE freely publish their guidelines for barn fire prevention and mitigation.¹²⁹ And yet, the fires continue. Why? In a guidebook for inspectors of agricultural buildings in Quebec, the problem is summarized as follows: Farmers raising livestock and poultry often work 7 days per week, 365 days year, they have to manage their business on their own and to stay profitable or meet a deadline, they will prioritize certain areas over others. Within this reality, *fire safety is rarely a priority*.¹³⁰ But it should be.

This paper provided an overview of the prevalence and severity of barn fires in Canada. It explained why animal housing facilities are particularly vulnerable to fires compared to other buildings, and described the social, financial, and environmental consequences of barn fires. Despite the existence of detailed guidelines in National Model Codes and robust fire safety and fire prevention legislation across Canada, farm buildings are consistently exempt from requirements that apply to buildings with human occupants. While recent updates to the National Model Codes suggest that greater attention is being paid to the risks associated with large-scale agricultural operations, fire detection and suppression requirements are, for all intents and purposes, non-existent. Adopting a welfarist utilitarian approach, this paper argued that, because animals are sentient beings, producers have an obligation to minimize their suffering throughout their lifetime, including when disaster strikes.

If historically animal housing facilities were exempt from certain fire safety standards to reflect the size and scale of operations in the agricultural sector, the characteristics of industrial animal agriculture today do not warrant this special treatment. A single fire on a farm can result in utter devastation. Recently, a fire at a dairy farm in Dimmitt, Texas killed 18,000 cows and seriously injured one employee.¹³¹ Just a few months earlier, 100,000 chickens died in a fire at an egg farm in Bozrah, Connecticut.¹³² Even as farm sizes in Canada remain smaller than those in the United States, the deadliest fires on record here are also in the tens and even hundreds of thousands. A careful study of best practices to prevent barn fires and mitigate damages is essential to reduce unnecessary suffering going forward. It can also be instructive to think about how early detection methods, mitigation and evacuation protocols can be applied to other disasters in the agricultural sector more broadly. Extreme weather events are positioned to aggravate the loss of lives and livelihoods as wildfires, floods, hurricanes and blizzards become more frequent. As mentioned previously, the British Columbia heat dome and floods in 2021 killed 1.3 million farm animals. And the 2016 wildfires in Fort McMurray, Alberta was the most expensive natural disaster in Canadian history for insurance providers, with estimated insurance losses at \$3.7 billion.¹³³ From both an animal welfare and a business perspective, more needs to be done so that animals receive the necessary standard of care during emergencies.

Cattlemen's Association <www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/farm-management/emergency-management/dairy_emergency_management_guide.pdf>; Ontario Ministry of Agriculture, Food and Rural Affairs, "Reducing the Risk of Fire on Your Farm. Publication 837" (2011), online: *Government of Ontario* <www.omafra.gov.on.ca/english/engineer/barnfire/toc.pdf> [OMAFRA, Reducing the risk of fire]; Rural Emergency Plan, "The Alberta Environmental Farm Plan Company" (2008), online: *Rural Emergency Plan* <www.ruralemergencyplan.com>; Gouvernement du Québec, "Fiche d'information- Les dangers d'incendie à la ferme", (n.d.) *Union des producteurs agricoles*, online: <https://www.upa.qc.ca/fileadmin/01_UPA_provincial/Prod_SST/Documentation/dangers-incendies_ferme_juin07.pdf>.

¹²⁹ NFPA Standard 150 *supra* note 107; CFPPE Guideline No 17 *supra* note 108.

¹³⁰ Jean-Robert Choquette, "Guide d'accompagnement pour formulaire d'inspection des bâtiments agricoles", (n.d.) *Gouvernement du Québec*, online: <<https://cdn-contenu.quebec.ca/cdn-contenu/adm/min/securite-publique/publications-adm/publications-secteurs/securite-incendie/services-securite-incendie/guides-reference-ssi/guide-inspection-batiments-agricoles.pdf?1608155493>>.

¹³¹ Livia Albeck-Ripka, "About 18,000 Cattle Are Killed in Fire at Dairy Farm in Texas" (13 April 2023), *New York Times*, online: <<https://www.nytimes.com/2023/04/13/us/dairy-farm-fire-explosion-texas-cows.html>>

¹³² Taylor Hartz, "About 100,000 chickens die, coop destroyed in blaze at Bozrah egg farm" (29 January 2023) *Hartford Courant*, online: <<https://news.yahoo.com/100-000-chickens-die-coop-174800108.html>>.

¹³³ Statistics Canada, "Infographic: Fort McMurray 2016 Wildfire - Economic Impact" (16 March 2017), *Government of Canada*, online: <<https://www150.statcan.gc.ca/n1/pub/11-627-m/11-627-m2017007-eng.htm>>.

