

All-Hazard Type Events: Producer Preparation and Response

Katherine Altman

Emergency Management Section, Alberta Agriculture and Irrigation, Neil Crawford Provincial Centre, J.G. O'Donoghue Building
7000 – 113 St. Edmonton, AB T6H 5T6. Email: Katherine.altman@gov.ab.ca

■ Take Home Messages

- ▶ The number and complexity of emergencies and disasters are increasing across Canada.
- ▶ The average Canadian is expected to be self-reliant for a minimum of 72 hours and people living in more remote or isolated areas should plan for a longer period of time because it will take emergency responders longer to reach those locations.
- ▶ Rural municipalities' emergency response systems, which primarily rely on volunteers, lack capacity to respond to large and complex emergencies.
- ▶ Firefighting is dangerous and has specialized training for wildland and structural firefighters. This means that wildland firefighters are generally not trained to fight structural fires.
- ▶ Rural residents, particularly ones with agricultural interests, should prepare for emergencies.
- ▶ Emergency management (EM) priorities are life safety, protect property, which includes animals and crops, followed by preserve the environment.
- ▶ Agricultural operations do not fully align with the EM priorities because they often prioritize property for protection differently; once family is safe, many producers want to protect their agricultural animals and infrastructure before their family home.
- ▶ The question about whether to shelter animals in place or to evacuate them comes with several interesting and complex factors that are unique for each agricultural operation.
- ▶ Creating an EM plan for an agricultural operation includes the following three steps:
 - Know the risks and get prepared,
 - Make an emergency plan,
 - Prepare a farm emergency kit.
- ▶ Tools and resources exist for agricultural operations to prepare an EM plan for hazards that threaten their agricultural operations.

The 2023 Canadian wildfire season should serve as a wake-up call to all Canadians.

The Canadian Interagency Forest Fire Centre, which supports wildfire response across the nation, recorded over 6,600 wildfires that burned more than 18.5 million hectares during 2023. This drastically exceeds the ten-year average of 2.7 million hectares and the 1995 record of 7.1 million hectares (Figure 1). To put the 2023 impact in perspective, the total area burned across Canada would encompass all of Alberta's farmland south of Highway 16 to the borders with Saskatchewan, the United States and British Columbia.

Annual Area Burned in Canada

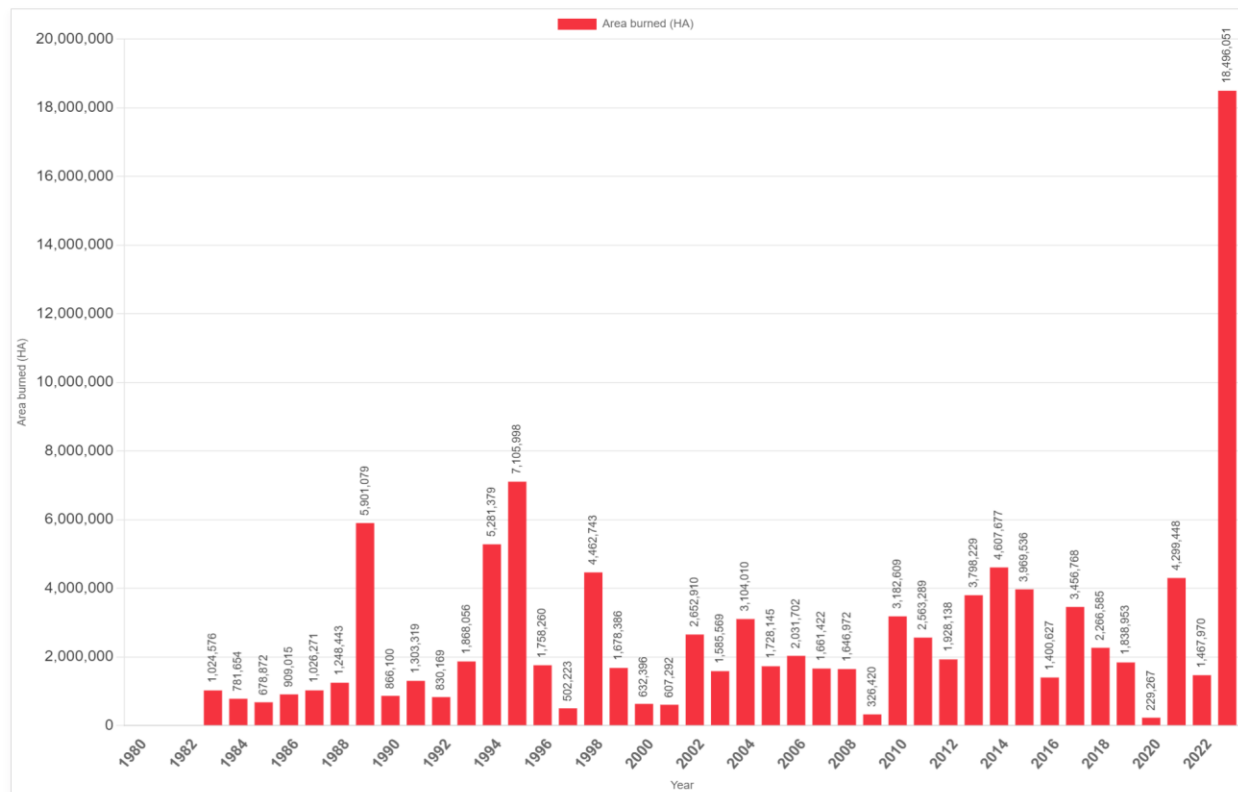


Figure 1. Annual area burned in Canada ([https:// https://ciffc.net/statistics](https://ciffc.net/statistics))

In Canada, the responsibility to provide the initial emergency response lies with the individual or municipality where the emergency has occurred. If the local municipalities' resources are over-stretched, they can request support from their neighbouring municipalities or escalate to their provincial or territorial government, who in turn can request assistance from the Canadian federal government. This graduated system effectively uses local knowledge but can become over-stretched when large, complex, or multiple emergencies occur within a region, all of which occurred during the 2023 wildfire season.

Regardless of which level is providing the response (e.g., the individual, municipality, province or territory, federal government) the emergency management (EM) priorities are always implemented in the order of:



To meet these priorities, emergency responders generally target the areas where many people and property are located rather than isolated areas. This approach is followed even more closely when there are limited EM resources in the form of personnel, equipment, or supplies. While the average Canadian is expected to be self-reliant for up to 72 hours, remote or isolated premises should plan for a longer period of self-reliance. This is even more important for agricultural operations that often have large numbers of animals, extensive infrastructure, and a variety of hazardous materials. This recommendation is not to undermine the efforts and support that emergency responders provide agricultural operations but to highlight the fact

that their priorities do not fully align with that of the typical agricultural operation. While both groups value the safety of human lives, the emergency responders typically prioritise protecting homes over a barn and perhaps even over agricultural animals.

Following the 2023 wildfire season, Alberta Agriculture and Irrigation's Emergency Management team met with agricultural staff from 11 of the 20 directly impacted rural municipalities to facilitate an after-action review. This after-action review involved detailed discussions regarding successes, areas for improvement and significant issues experienced with how their respective municipalities responded to the emergencies. While all spoke of challenges working in a fast-paced and constant changing wide-spread environment, the common issues easily separated into three distinct categories:

- Municipal government
- Municipal agricultural service team
- Agricultural operation/ producer

At the municipal government level, the common observation was insufficient resources, either available in-house or accessible to support emergencies involving multiple agricultural operations impacted along several front lines. Coupled with this, there was a lack of knowledge regarding how the Provincial Emergency Coordination Centre (PECC) could assist in procuring resources. Examples of the types of resources that could be requested through the province include livestock transport vehicles and pasture land. Municipalities that had a livestock emergency response plan or understood how to access resources through the PECC reported less challenges and problems with responding to the emergency but still found securing resources a challenge. The absence of a plan generally meant that there was no clear understanding of what a municipality could and would do to support agricultural operations during an emergency.

This is not to throw blame on municipalities or their fire departments, which primarily comprise volunteers that undertake training, respond to emergencies, and participate in community planning outside of their regular work commitments. It is important to acknowledge that few municipalities have sufficient full-time paid staff dedicated to emergency management and response. The Canadian Association of Fire Chiefs' 2022 census showed that 71% of Canada's firefighters are volunteers. As well, rural municipalities generally rely on volunteer or paid-on-call firefighters for the majority, if not all their front-line emergency services (Canadian Association of Fire Chiefs, 2022).

Communities with plans and training were generally able to manage better. However, most rural municipalities do not have sufficient staff or enhanced training to manage either an extended or widespread emergency. Further compounding this, most agricultural service team members openly spoke of the stress associated with working long hours for multiple days where what was effective yesterday or even that morning was no longer effective by mid-afternoon. A fast-changing environment can require quick transitions from one strategy to another, often multiple times, before landing on one that fits the incident and is sufficiently resourced to be effective. Success in that type of environment without EM training and advance planning may often be limited.

Surprisingly, no reports of significant losses of either agricultural animals or structures were received, despite the provincial Premises Identification System reporting over 3,400 agricultural premises containing over 1.3 million animals across the 20 impacted municipalities. This fact seems even more surprising recognizing that local pastures and grazing leases had insufficient water and no grass when most of the fires started, many of the over 300,000 head of cattle were in spring calving, and there were limited transportation routes available to evacuate animals because of the geography. A further complication was that many municipal agricultural service team members indicated that their own homes or agricultural operations were under threat from the advancing wildfires, which put them in the unique position of being both an emergency responder and a potential evacuee.

At the individual operation level, the lack of clarity regarding who takes the lead on fighting a wildfire created confusion and frustration amongst potential evacuee's and directly impacted residents. A common

assumption is that wildland firefighters will step in to manage structural fires for premises located along or near the provincial forest areas. While Alberta's Forest Areas do have mutual aid agreements with municipalities that have 'wildland-urban interface areas' or 'wildland-urban intermix areas' (Figure 2 and Figure 3), the ability to fight structural fires requires special training as fire behaves differently pending the type of fuel (e.g., grass, trees, crops, building materials) that it is consuming.



Figure 2. Wildland-Urban Interface Area in Advanced FireSmart Home Assessment 2023.



Figure 3. Wildland-Urban Intermix Area in Advanced FireSmart Home Assessment 2023.

As such, responding to fires that span between 'wildland-urban interface areas' or 'wildland-urban intermix areas' relies on a strategic and highly coordinated approach between the provincial wildland firefighters and the various municipal fire departments. This can be further complicated when landowners take action outside of their land because there is no way of knowing where they are or what they are doing in relation to the other front line emergency responders. Several near-miss accidents involving firefighting crews and self-deployed individuals that were operating either along the very edge of their land or outside of their land were reported during the response. All response activities should be fully coordinated to support the life safety of responders.

Communication was identified as needing improvement at all levels. Municipalities referenced frustration over spending limited resources truth sourcing and correcting messages that were corrupted or muddled by unofficial statements or public social media posts that were accepted as accurate statements. Producers expressed concerns and frustrations over not receiving information early enough to make critical decisions regarding their agricultural operations, such as preparing animals to evacuate or preparing animals to shelter-in-place.

Not all species can evacuate even with sufficient notification. The ability to evacuate animals depends on each species' specific disease risks or status, production cycles (are animals calving or in high milk production phases), availability of alternate space that meets appropriate biosecurity requirements and the ability to complete transportation in the available evacuation window. Livestock evacuation, even when fully resourced, is a timely and costly process. Anecdotally, many producers who did not evacuate also indicated that they didn't 'see' anyone protecting their operation, so they felt that they had no choice but to stay and safeguard their animals and structures.

Recognizing that the decision to evacuate or shelter-in-place is often based on factors beyond the producer's control, perhaps a more relevant question for a producer is how can they effectively safeguard their operations against the most common hazards they are likely to experience? Safeguarding an agricultural operation can be effectively undertaken by producers through implementing the first two stages of the continuum, which the Alberta Emergency Management Agency defines as a cyclical 'approach to managing hazards, risks, and their potentially harmful effects'. The four stages are considered a continuum as they occur in advance of, during and following an emergency (Figure 4).

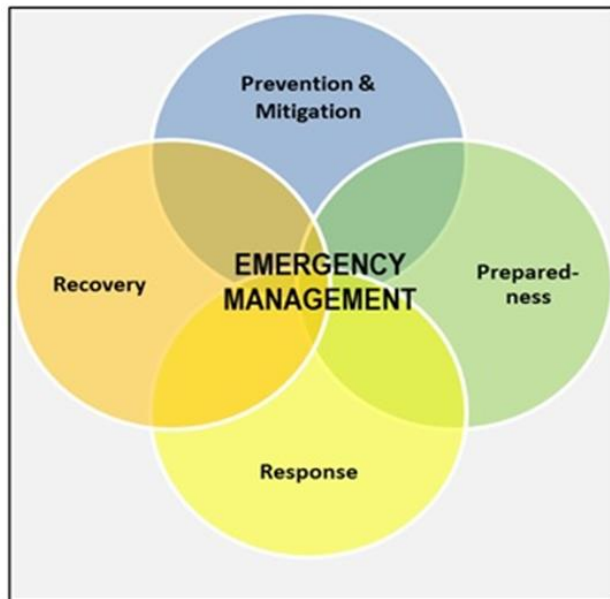


Figure 4. Emergency management continuum (<https://agriculture.canada.ca/en/sector/animal-industry/emergency-management/framework>)

The first stage of EM is prevention and mitigation, which can be done well in advance of an emergency. It involves taking actions to avoid, eliminate or reduce the impacts of an emergency. This can include structural and non-structural measures that can be as straight-forward as having an appropriate hazardous materials storage system.

The following items are considered effective prevention and mitigation actions:

- ▶ Appropriate insurance coverage
- ▶ FireSmart your property
- ▶ Address existing on-farm risks
- ▶ Participate in EM training
- ▶ Comply with by-laws, including land-use planning
- ▶ Learn what your municipality and relevant industry association will do during an emergency
- ▶ Establish an initial farm emergency plan, including key contacts
- ▶ Traceability, Biosecurity and Environment (three modules in the Dairy ProAction initiative)

While all of these can provide benefits, let's focus on a couple. The first recommendation would be to implement FireSmart on the property, which typically also addresses some existing on-farm risks. "FireSmart is the implementation of both prevention and mitigation measures to reduce wildfire threat to Albertans..." (FireSmart Alberta 2023). This initiative addresses how to protect homes through proactive measures that can be applied to other structures to help reduce and mitigate the impacts of wildfire.

As well, agricultural operations are required to participate in several initiatives (e.g., Livestock Traceability, Biosecurity, etc..) that provide invaluable information to emergency responders. The Livestock Traceability's Premises Identification (PID) System data, such as the contact information and type of operation, can be shared with a municipality to help them prepare and respond to emergencies. This data is often used to send out early notifications, set up appropriate evacuation routes and allow temporary re-access for producers with animals sheltering-in-place. During a disease response the Office of the Chief Provincial Veterinarian will also rely on this data to minimize and control disease spread. Keeping Traceability PID

data accurate can make a difference between receiving a notification or being allowed to re-enter an evacuated zone to care for animals.

While learning what the municipality and relevant industry associations will do for an agricultural operation during an emergency is considered a prevention and mitigation strategy, it also carries over into the second EM stage. Preparedness consists of the following three steps:



An all-hazards approach that addresses natural hazards (e.g., floods, fires), technological hazards (e.g., dangerous good spill, hazardous materials) and man-made hazards whenever possible will undoubtedly provide the best coverage. However, identifying even the top two or three hazards that could impact the operation and determine their potential impact, which is the risk factor, will provide an excellent result. The hazards with the highest risk factors should be developed into well thought out emergency plans for the animals to either shelter-in-place or be evacuated. Both scenarios should be planned for because either may be required when responding to the emergency.

The development of these hazard specific emergency plans is the second step in EM preparedness. Agricultural operations will have similarities in their animal evacuation or shelter-in-place responses, such as access to clean food and water as well as ensuring each animal is clearly identified with a tag or marked with temporary non-toxic paint (e.g., owner's cell number) in case they get separated. Despite these similarities, there will be unique key factors of each high-risk hazard that needs to be accounted for. Floods will require access to high ground safe from power lines that may fall and pose an additional hazard of having to deal with live power lines near water. Winter storms will require shelter with sufficient space that can provide protection; barns and shelters need to bear the weight of heavy snowfall.

All emergency plans will require supplies that should be readily available and easy to transport. This is often referred to as a farm emergency kit, which is the third and final stage in EM preparedness. Farm emergency kits can contain everything from standard medical supplies, ropes, halters, temporary fencing and even supplies for the temporary identification of animals. The farm emergency kit needs to support the plans that have been developed for each high-risk hazard.

Actively safeguarding your agricultural operation consists of the following three steps:

1. Identify the top hazards and determine the high risks to your operation,
2. Make an emergency plan for the high-risk hazards,
3. Establish a farm emergency kit containing the necessary items to implement your plans.

It is highly likely that you've already thought through many of the hazards and began building emergency response plans for the high risks that threaten your agricultural operation but may not have compiled them together. The development of a plan for high-risk hazards does not have to be completed at one time; consider creating a plan for what may come next.

The 2024 year is shaping up to have significant water shortages, which most likely means an active wildfire season. The following tools and resources may assist you in developing a wildfire emergency response plan for your agricultural operation:

- Animal Health Emergency Management
 - Producer Handbook: Alberta Dairy Cattle Sector
 - Emergency Response Procedures: Non-Disease Related Emergencies
- FireSmart Begins at Home Guide
- Government of Canada's Emergency Preparedness for Farm Animals

Agricultural producers need to take the lead on safeguarding their operations instead of solely relying on under-resourced existing emergency response systems that may not reach them in time. This means working in advance to mitigate the impact of common hazards by implementing FireSmart and addressing known risks throughout the operation. Find out what the municipality will support during an emergency response and use that to develop a realistic emergency plan for your operation. Finally, take full advantage of existing support systems that are relied on by emergency responders to safeguard your operation. This means maintaining current Traceability PID contact and species data to receive timely notifications that can trigger implementing the emergency plan for your operation.

Safeguarding your family, your agricultural operation and your future is largely in your hands.

▪ References

- Alberta Emergency Management Agency (AEMA) 2019. Basic Emergency Management. <https://www.alberta.ca/basic-emergency-management>
- Alberta FireSmart 2023. <https://www.firesmartalberta.ca>
- Alberta FireSmart 2023. FireSmart Begins at Home Guide.
- Animal Health Emergency Management (AHM) 2021. Producer Handbook: Alberta Dairy Cattle Sector. <https://animalhealth.ca/ahem/resources/>
- Animal Health Emergency Management (AHM) 2022. Emergency Response Procedures: Non-Disease Related Emergencies. <https://animalhealth.ca/ahem/resources/>
- Canadian Association of Fire Chiefs 2022. Great Canadian Fire Census 2022. https://cdn.ymaws.com/cafc.ca/resource/resmgr/grweek2023/English_2022_Census.pdf
- Canadian Interagency Forest Fire Centre (CIFFC) Inc. 2023. Annual Area Burned in Canada. <https://ciffc.net/statistics>
- Natural Resources Canada 2023. National Wildland Fire Situation Report. <https://cwfis.cfs.nrcan.gc.ca/report>
- Natural Resources Canada 2023. National Wildland Fire Situation Report. <https://natural-resources.canada.ca/simply-science/canadas-record-breaking-wildfires-2023-fiery-wake-call/25303>
- Government of Canada 2021. Emergency Preparedness for Farm Animals. <https://www.getprepared.gc.ca/cnt/rsrscs/pblctns/frm-nmls/index-en.aspx>





Expertise and advice to help your business succeed

Reint Boelman
Agriculture Specialist
Alberta North
780 307-2346

Kevin Van Bussel
Senior Manager
Alberta Central
403 340-4500 ext. 304

Harry Slomp
Manager
Alberta South
403 382-2000 ext. 233

The CIBC logo is a trademark of CIBC.



Heartland
FEEDS

SUCCESS FROM THE GROUND UP,
FEED WITH PURPOSE.

www.heartlandfeeds.ca



Layne Van Rhijn
Owner & Sales

Sjoert Zuidhof
Veterinarian & Consultant

 Sjoert: 403-471-6275
Layne: 403-715-7482

 zuidhofsjoeert@gmail.com
info@diamondcityfarmsupply.com

*Providing Dairy Farmers with Unique Products and
Exceptional Service since 2010!*

Your Canadian Distributor for

- ~Accumast Test Plates
- ~ Selekt® Cattle Drenching
Products & Tools
- ~Agrimin Calcium Bolus
- ~ Calf Probiotics





**WE'LL FIND
THE WAY FORWARD
TOGETHER.**

AFSC has your back with a personalized portfolio of lending products to protect you from the unexpected ... and keep you moving forward.

PROUD TO GROW AGRICULTURE IN ALBERTA
AFSC.ca

