Planning for and Responding to Disasters in Canada

An Approach for Farmers and Farm Organizations

Canadian Farm Business Management Council
Conseil canadien de la gestion d'entreprise agricole

THE CANADIAN FEDERATION OF AGRICULTURE

Agriculture and Agri-Food Canada
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Disclaimer

This publication is intended to be used as a guide to emergency planning and response. The Canadian Farm Business Management Council, the Canadian Federation of Agriculture, it's authors, its partners and publishers do not take responsibility for the application of any or all suggestions, advice, and/or information contained in this document. Professional advice should be obtained for any emergency or disaster situation.

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Canadian Farm Business Management Council

The Canadian Farm Business Management Council (CFBMC) is the only national organization in Canada devoted exclusively to developing and distributing advanced farm management information.

Supported by Agriculture and Agri-Food Canada and a growing number of private partners, the Council is fulfilling a significant role as a world leader in farm business management.

The Council's wide range of information products such as CD-ROMs, books and videos cover topics of relevance to farmers such as biotechnology, succession planning, marketing, human resources and finance. Support for major farm management events, a web site updated daily and collaboration with industry, the education sector and provinces further help to address the management information needs of Canadian farmers in a globally competitive environment.

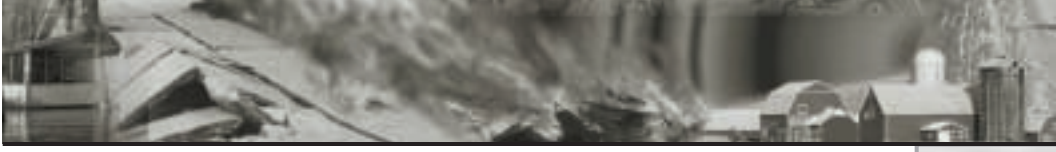
Canadian Federation of Agriculture

The CFA was formed in 1935 to answer the need for a unified voice to speak on behalf of Canadian farmers. It continues today as a farmer-funded, national umbrella organization representing provincial general farm organizations and national commodity groups. Through its members, it represents over 200,000 Canadian farm families from coast to coast.

The CFA's mission is to promote the interests of Canadian agriculture and agri- food producers, including farm families, through leadership at the national level and to ensure the continued development of a viable and vibrant agriculture and agri-food industry in Canada.

The aims and objectives of the Canadian Federation of Agriculture are:

- To coordinate the efforts of agricultural producer organizations throughout Canada for the purpose of promoting their common interest through collective action.
- To assist members and where necessary government, in forming and promoting national agricultural policies to meet changing domestic and international economic conditions; and to collaborate and cooperate with organized groups of producers outside Canada to further this objective.
- To promote and advance acceptance of positive social, economic and environmental conditions of those engaged in agricultural pursuits.



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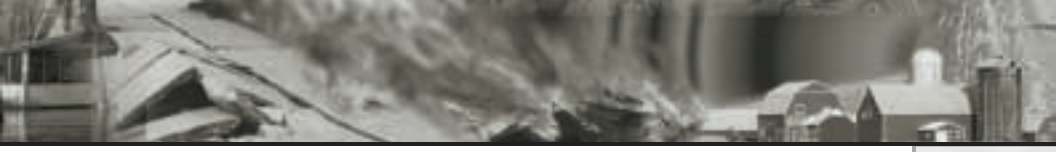


Foreword

The purpose of this Project is to provide a practical "tool" for farmers and farm organizations to plan for and respond to natural disasters. The format is both easy to use and covers a wide range of topics.

Natural disasters are becoming an everyday occurrence in Canada and the consequences are costly, disruptive and stressful. In 1996 major floods on the Saguenay River in Quebec resulted in severe damages for agricultural producers. The Red River floods in Manitoba one year later had similar disastrous effects. In 1998, the Eastern Canada Ice Storm turned out to be the most costly natural disaster in Canadian history.

Due to significant climate change, the frequency with which natural disasters occur will present a major challenge to farmers and farm organizations in the new millennium.

The most common natural disasters in Canada are:

- Winter Snow and Ice Storms
- Drought and Fires
- Heavy Rainfall and Floods
- High Winds, Hurricanes and Tornadoes
- Mud Slides and Earthquakes

The key to surviving any disaster is to be prepared and to be informed. Planning ahead and providing for the needs of your family and farm can make the difference in your ability to cope with a major disaster.

The following modules are intended to help you plan for and respond to these and other natural hazards encountered by

Canadian farmers and rural residents. The modules will help you with incidents that occur less frequently, but have a higher impact and result in a significant disruption to your farm operations.

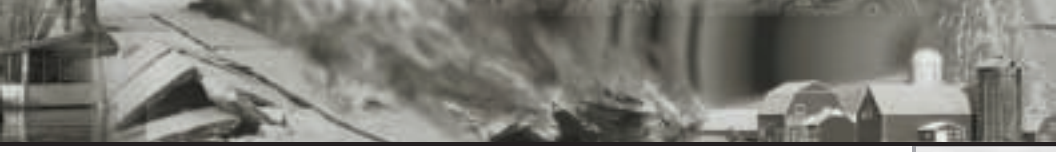
Users of these modules may also find the information and instructions useful in planning for and responding to technological and "man-made" disasters such as environmental emergencies power, and telecommunication failures.

Module I
Emergency Management in the Farm Sector
An All-Hazards Approach

Module II
The Farm Gate Emergency Guide

Module III
Farm Emergency Plan
An Example

Module IV
Farm Emergency Fact Sheets



Module I: Emergency Management in the Farm Sector: An All-Hazards Approach

Emergency management in Canada is based on the fundamental principle that the initial responsibility for responding to an incident normally rests with those directly affected. If private resources alone cannot manage the response, government action may be required. When necessary, municipal, provincial and federal government organizations are ready to assist.

For most, if not all natural disasters, the steps to follow in planning and responding are similar. Any differences in these steps are normally due to the time of year and the commodity affected. That is why an "all hazards approach" has been adopted. What this means is that the same steps for planning and responding to natural disasters will be used in every case, with minor exceptions.

The Emergency Management Process

Emergency management involves four stages of prevention, preparedness, response and recovery.

Prevention

On-going activities to reduce the risk to health, life, property and the environment from hazards which include natural, epidemiological (health-related) and man-made (technological) disasters.

Preparedness

Activities, programs, and systems developed prior to a disaster/emergency that are used to support and enhance prevention, response, and recovery.

Response

Activities that address the immediate and short-term effects of the disaster/emergency.

Recovery

Activities and programs designed to restore the affected property to an acceptable condition.

Prevention

A prevention program is a set of actions taken well in advance to lessen or eliminate farm damages from natural disasters. Some typical examples are:

- Farm Emergency Plan
- Insurance
- Safety Nets
- Government Assistance Programs
- Health Standards
- Safety Standards
- Hazardous Materials Standards
- Environmental Standards
- Flood Plain Mapping

In effect, prevention is a long-term approach to looking at the fundamentals of emergency planning. Common sense actions taken in advance will reduce or sometimes eliminate farm damages.

Avoid locating your building on low, poorly drained ground, especially in well-defined flood plains.

Be sure your insurance policies are up-to-date, with the best coverage you can afford. Talk to your insurance agent about special coverage for natural disasters.

Ask your agricultural extension officer to review your farm operations with a view to assessing your vulnerability to natural disasters.

Be sure you have an up-to-date Farm Emergency Plan and that your family and employees are aware of their responsibilities in the event of an incident.

Discuss your emergency planning ideas with your friends, neighbors and business associates to determine ways in which you can cooperate and/or share resources and equipment in an emergency.

Preparedness

In the preparedness or detailed planning stage, you have the option of looking carefully at the potential risks of natural disasters affecting your farm operation by undertaking a "hazard analysis". This is the start to developing a Farm Emergency Plan.

The Disaster Impact worksheet in **Module IV** provides a step-by-step procedure in undertaking your individual "disaster impact analysis". This fact sheet will be useful to those who recognize that they are in a vulnerable circumstance, and would therefore like to assess their situation more completely. This step is indeed an option, but for some farmers, the consequences of not undertaking this analysis could be costly.

? "What must I do to ensure that my family and I are prepared to respond to any natural disaster that may affect my farm operations?"

- Conduct a detailed inventory of the essential elements that make up your farm operation.
- Conduct a hazard analysis for natural disasters that are of concern to you. This will help you to establish the deficiencies in your farm operations. You can use the one page short form or the more detailed five-page version, depending on the size and complexity of your operations.
- Rank the deficiencies according to priority.
- Develop emergency plans for each "deficient essential element".

Application of the Emergency Management Process

By applying the stages of the Emergency Management Process to the essential elements of a farm operation, you will be able to determine how prepared your farm operation is to withstand a range of natural disasters.

The chart on the next page is an example of the key emergency preparedness priorities that result from the application of the emergency management process to the farm operation's essential elements. After an analysis of farm deficiencies, the end result is a list of preparedness priorities. This will vary depending on the hazard being considered and the commodity of concern (e.g. dairy, hogs, mixed farm, etc.).

Nine Essential Elements

Preparedness priorities resulting from applying the emergency management process to all essential farm elements

Essential Farm Elements	Priorities for Emergency Preparedness
1. Roles/Responsibilities of Home Owner/Rural Resident	☐ Preparing Farm Emergency Plan ☐ Activating the Plan ☐ Training & Exercises Plan ☐ Managing the Response/ Recovery ☐ Other
2. Farm Assets	☐ Inventory ☐ Alternative Accommodation ☐ Lease, Rental Arrangements ☐ Structural Evaluations
3. Communications	☐ Alternate Communication ☐ Cellular Telephone ☐ Crank Radio ☐ Battery Radio Back up ☐ Spare Batteries ☐ Emergency Contact List
4. Health, Safety & Food	☐ Two-weeks Food Supply ☐ First Aid Kit ☐ CPR Training ☐ Medical Supplies, Prescriptions ☐ Evacuation Plan & Map ☐ Stress Management ☐ Other
5. Standby Power & Other Energy Sources	☐ Standby Power Arrangements ☐ Connections ☐ Wind/Solar Devices

6. Water supplies	☐ Stored water- two-week supply ☐ Alternative source arrangements ☐ Water testing/purification ☐ Surface & well-water decontamination ☐ Alternative external sources ☐ Manual feeding systems
7. Health, safety & feed Plant and animal	☐ Inventories ☐ Evacuation Plan ☐ Water and Feed Supplies ☐ Crop Specialists
8. Environmental	☐ Wastewater/Manure Disposal ☐ Drainage Plan ☐ Hazardous Materials ☐ Safe Storage
9. Finance & administration	☐ Safety Box duplicates of essential records ☐ Insurance Policies

Response

This section has been written as a " stand-alone" format to be used in advance and immediately at the onset of an emergency. It contains the logical steps to follow in responding to natural disasters.

? "What must I do to ensure that I respond quickly and effectively to a natural disaster that threatens the well-being of my family and farm operations?"

On the first indication of an emergency situation you must:

- Account for the safety and well-being of your family members, hired help and farm animals.
- Confirm the nature, magnitude and implications of the emergency.

- Immediately check the farm property, buildings and all essential farm elements.
- Activate your emergency plan as required to meet your immediate needs, e.g. stand-by power, evacuation, communications, etc.
- Tune into your local radio or television stations for emergency weather reports and other relevant emergency information and instructions.
- Take stock of the damages and record the results of your preliminary assessment.
- Determine critical resource requirements including generators, water, feed, fuel, etc.
- Call your emergency contacts as required to request resources and gather information on outside sources of assistance (eg. government services). Where possible pool and coordinate the allocation of commonly needed response resources.
- Continue the emergency response and farm operation by monitoring the changing situation and reassessing your needs.

Recovery

The kinds of relief needed in an emergency are rescue and communications. After the direct dangers of the disaster have passed, the focus shifts to rebuilding.

Recovery is the task of rebuilding after a disaster. This can take months and even years to complete. Recovery costs can be well beyond the capabilities of local governments in order to repair expensive water, sewage and other essential services. During the recovery stage, financial assistance from a variety of sources can help enormously. Loans and grants help communities rebuild homes, businesses and public facilities, clear debris, and repair roads and bridges.

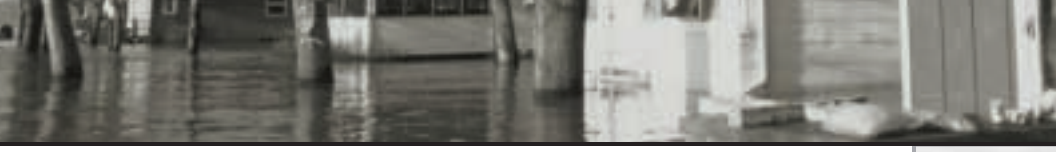
Here is a step-by-step procedure to help you recover from the economic and social impacts of the disaster and restore your farm operations to its pre-disaster condition.

- ☐ If you have been documenting the damages and costs throughout the response phase, now is the time to prepare a detailed record including items damaged or lost, sketches and photographs if possible and receipts/records of all costs incurred.
- ☐ If you have previously notified your insurance agent and you have a detailed summary of damages, you will be able to provide the insurance adjuster with a comprehensive claim.
- ☐ Government and other organizations provide assistance programs to the victims of large- scale emergencies. These services are provided by three levels of government (municipal, provincial and federal). All three levels coordinate their services so that generally only one claim for assistance is required.
- ☐ Resuming operations as quickly as possible is highly recommended to minimize start-up problems and long-term effects on your livestock, crops and farm operations.
- ☐ In restoring your operations, you may be able to use this as an opportunity to re-think and re-design the way you have been operating your farm enterprise, i.e. to use more modern or more energy saving technology and equipment.
- ☐ Finally you should ensure that as a result of your experience, you make a thorough revision of your "Farm Emergency Plan".

The four stages of farm emergency management (prevention, preparedness, response and recovery), have been described and discussed in this Module.

The next part of this Module applies the Emergency Management Process to several disaster examples (floods, winter storms, drought and extreme heat, tornadoes, earthquakes, hazardous materials and radiation hazards). The result is a detailed list of important actions to be taken at each stage of prevention, preparedness, response and recovery. This establishes the "all-hazard approach" and the importance of emergency management on the farm.

In summary, this information will assist farmers and rural residents to know what types of disasters they may encounter, and to know how to lessen the effects or to prevent serious damages.



Floods

Floods are one of the most common natural disasters in Canada and no area is free from the threat of floods.

Floods can be slow or fast rising. Slow-rising floods occur as a result of floodwaters that move down a river or stream. The height of slow-rising floods can usually be predicted. Flash floods, on the other hand, occur suddenly and are usually the result of extremely heavy rain or melting snow. They can also result from a dam failure.

Prevention

Proper land-use management and strict enforcement of building codes, with special attention to floodplains, has helped reduce some of the high cost losses due to flooding. There are other actions that may lessen the impact of floods.

Determine if you are in a floodplain. This information is available from your local municipality. Ask your local property insurance agent about flood insurance.

Before you build or buy a home below a dam, learn as much as you can about its safety record.

Check local building codes. Install check valves in building sewer traps to prevent floodwater from backing up in sewer drains. The cost of protecting your home and farm may be expensive, but the investment may save the lives of people and valuable animals.

Avoid building in a floodplain. If you graze livestock in floodplains, be prepared to move them to higher ground before low-lying evacuation routes become flooded. Also, consult with your local municipality if you plan to alter landscape on your property in such a way that it may affect the flow of water in a flood.

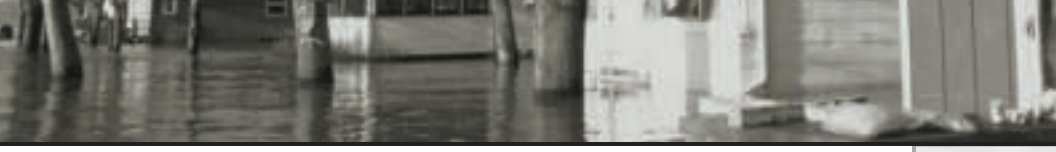
Many farms operate manure pits and lagoons that are susceptible to flooding. Consult with your local environmental management or natural resources agencies on how to prevent overflow of these waste treatment facilities into local streams, rivers, or drinking water supply.

Construct buildings for the storage of farm chemicals such as fertilizers, herbicides, pesticides and fuels to lessen the chances of contaminating the environment. Spilled chemicals are a potential cause for liability suits after disasters.

Preparedness

Preparation for floods includes actions such as stocking and replenishing emergency supplies, planning evacuation routes, and ensuring that equipment and vehicles are in proper working condition. Here are some guidelines to follow when preparing for a flood emergency:

- Stock and replenish emergency building materials such as sandbags, plastic sheeting and lumber.
- Keep your car, truck, or other vehicles fueled. If electric power is disrupted, gas station pumps may be out of operation for several days.
- Check your livestock trailers to make sure they are in operating condition.
- Make family and livestock evacuation plans. If you are in a



flood area, have several alternate routes to ensure rapid evacuation. If you have a large number of livestock, anticipate the course floodwaters might take. Start moving animals in advance of any danger. Even if the evacuation turns out to be unnecessary, at least you have practised for the time when it might be necessary.

- Maintain a disaster supply kit that includes items such as a first aid kit, water, food that requires little or no cooking or refrigeration, a portable radio, emergency cooking equipment, flashlights and batteries. Also, be sure to maintain a supply of food for your animals. Ensure that animals are properly identified - keep identification tags on animals at all times so that if they get lost during a flood, you have a better chance of getting them back. Ideally, tags should also list an out-of-province contact.
- Store drinking water in jugs, bottles etc. Be sure to include enough water for the animals in your household.
- Maintain your animals' vaccinations against rabies and tetanus.

Response

The immediate danger from floods is from the strength of the water current as it surges through an area, carrying debris and causing injuries and drowning. This is a particular concern for farms and livestock.

Floods can interrupt power, fuel sources, and make roads impassable.

People may be stranded in their homes and farms, or be unable to reach their homes.

Landslides and severe erosion may also result from flooding.

Seconds may make the difference between life and death. If you hear a flash flood warning on the radio or television, or hear the roar of approaching waters, act immediately.

Head for the nearest high ground without hesitation, bringing your animals with you if they are in danger.

Even if you are not sure where to take your animals, do not leave them behind (unless it would compromise your safety).

If you must leave animals behind, ensure that they always have an easy escape route. Never tie an animal up if floods are pending. Many animals have died during floods when owners left them confined.

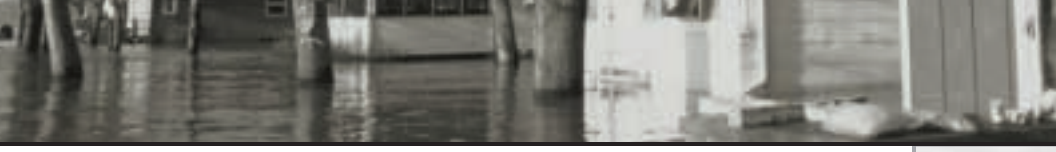
As flood waters rise, take these key precautions:

- ☐ Secure all outdoor items or store them inside on upper levels.
- ☐ Move all valuable household possessions to upper levels above rising water.
- ☐ Move cars, machinery, and all livestock to higher ground.
- ☐ Check emergency food and water supplies and move them to a high-and-dry place.

Listen to radio announcements from emergency officials. If you are told to evacuate, do so immediately. Use only those routes recommended by local authorities. Any other route could be blocked or otherwise made impassable by flooding. At the earliest sign of danger, start moving your animals to a safe location.

If there is time before evacuation, turn off all utilities at the main switch. Do not touch any electrical equipment unless it is in a dry area. Always wear well insulated rubber footwear and gloves.

Do not attempt to drive over a flooded road; you can become stranded or trapped. If your car stalls while in flowing water,



abandon it immediately, taking with you any animals (unless it would compromise your safety). Cars may only serve as traps in the face of a raging flood. If you are evacuating horses, do not ride them through swift moving, deep water.

Do not attempt to cross flowing water that is above your knees.

Recovery

Large-scale flooding can disrupt a community for a long time while utilities are restored, debris is cleared, and property is repaired. Dangers include:

- Outbreak of disease
- Widespread animal death
- Broken sewage lines and water pollution
- Broken gas lines, downed power lines and fires

Keep animals away from any of these dangers. Agricultural and grazing lands can be ruined and crops destroyed by flooding, decreasing the food supply for people and livestock. Fungal contamination of animal feed can be toxic to animals and humans who consume the meat or milk of cattle that ingest these fungal toxins.

During the recovery process, safety precautions may prevent further damage. Listed below are some precautions that will help you recover from a flood.

Do not use food that has come into contact with floodwaters. This includes any feed for animals. Do not give animals tap water until it has been boiled or determined safe. Wells should be flushed out and the water tested before drinking.

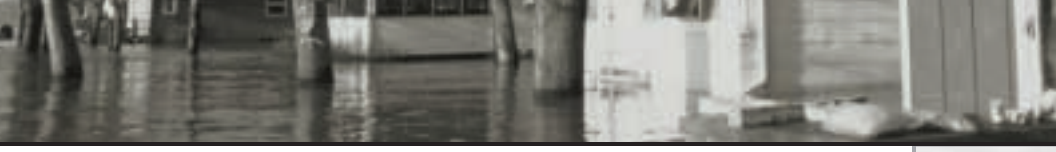
! Before entering a building or barn, check for structural damage.

- ☐ Before entering a building, open the doors and let it air out for several minutes to remove foul odours or escaped gas. Do not use a match or lantern as a source of light because of the possibility of gas build-up. A battery-powered flashlight is recommended.
- ☐ Once inside a building, check for electrical shorts and live wires. Make sure the power is turned off and do not use any electricity until an electrician has checked your system. Report broken utility lines to appropriate authorities.
- ☐ Open all doors and windows to help dry the building. Shovel out mud while it is still moist to give walls and floors an opportunity to dry. Be aware that if livestock have to stand in mud for extended periods, they can develop foot problems.

In a barn, empty any water containers that contain flood water, and be sure to clean them with diluted chlorine bleach or some other type of disinfectant before they are used again. Any feed or bedding that has become wet or damp must be disposed of so that animals cannot eat it. Mouldy feed can lead to serious disease in livestock.

Before horses or livestock are returned to property that has flooded, be sure that all perimeter fences are intact and any debris has been removed.

The release of hazardous materials during floods may also become a problem. This can lead to poisoning in animals that ingest or come in contact with the hazardous materials, and exposure to humans that handle contaminated animals. Ingestion of and skin contact with hazardous materials by farm



animals could also cause the hazardous materials to enter the human food chain. Consult with your veterinarian, department of agriculture or extension specialist to determine the safety of the feed for animals and products for human consumption.

Winter Storms

Winter storms vary in size and strength. There are three categories of winter storms. These are defined as follows:

Blizzard: The most dangerous of all winter storms. It combines low temperatures, heavy snowfall and high winds.

Heavy snowstorm: Drops ten or more centimetres of snow in a 12-hour period, or fifteen or more centimetres in a 24-hour period.

Ice storm: Occurs when moisture falls from clouds and freezes immediately upon impact.

Heavy snowfall and blizzards can trap people and animals in their cars or inside buildings. These conditions can cause the loss of livestock.

Ice storms can break power lines causing widespread blackouts. This can be a serious problem for dairy farmers, making it difficult for them to milk their cows. Intensive farm industries, such as swine and poultry farms, may also suffer during these storms if their heating systems fail or fuel cannot be delivered to power generators. Frozen water troughs, and snow-covered feed bunkers and pasture can lead to malnutrition and dehydration in animals.

Fires during winter storms present a great danger because water supplies may freeze and fire-fighting equipment may not be able to get to the fire. Large amounts of snow can also lead to localized flooding when warmer temperatures melt the snow in a short period of time.

Prevention

The following is a list of actions that can be taken to lessen the possible effects of winter storms.

- ☐ Purchase a flood insurance policy to cover possible damage that may occur during the spring thaw.
- ☐ Store adequate amounts of fuel and extra feed before the severe winter weather starts.
- ☐ Construct barns and other structures to withstand typical snow accumulation in your area.

Preparedness

Preparedness actions before winter storms include monitoring weather conditions, insulating the areas where your animals are kept, and ensuring that family members know how to use the emergency lighting and heating equipment. Here are more actions to take in order to be prepared:

- Use your radio, television and newspapers to keep informed of current weather conditions in your area.
- Be prepared for isolation at home. It is highly possible that a severe winter storm could isolate you for one to two weeks.
- If possible, insulate and ventilate any buildings used to house animals.

Have fuel and safe emergency heating equipment available in case of power failures that would shut down standard furnaces - a camp stove with fuel or a supply of wood or coal for your fireplace could be used. Be prepared to keep at least one

room of your house warm enough to live in for a period of one to two weeks.

Be sure that all family members know how to use your emergency heating and lighting equipment. Proper ventilation in homes and barns is essential. Never use fuel in equipment that was not designed for that fuel. Burning charcoal indoors will give off deadly carbon monoxide. If you need to heat a barn, use something with a safely contained heating element. Do not place it near hay or any other combustible material. Also, never leave a heater unattended in the presence of animals. Keep fire extinguishers nearby.

Stock an emergency supply of food and water for you, your family and your livestock. Keep foods that do not require cooking or other preparation. If you or your animals are on continual medication, be sure to always have at least a two-week supply on hand.

Should a power failure occur, have a battery-powered or crank/solar radio and extra batteries on hand. Have flashlights ready for use. A standby power generator is essential to prevent the loss of life in livestock production facilities.

Keep simple tools and other equipment easily accessible to fight a small fire. The chance of fire may increase when wiring and ventilation is inadequate. Winter storms may interrupt fire department services.

Only keep livestock that have had sufficient time to acclimatize to the cold weather outdoors. Provide extra feed and wind breaks for any animals kept outdoors.

Keep your car winterized with anti-freeze. Carry a winter car kit that includes food and water, a windshield scraper, a flashlight with extra batteries, a tow chain or rope, a shovel, tire chains, a blanket, a bag of sand, a fluorescent distress flag, and emergency flares. If you have to travel, keep a supply of high-energy foods, candles and matches with you. Keep extra mittens, hats, boots, socks and outerwear in the car. Put extra blankets in the car.

Response

Do not be fooled if a winter storm seems mild as it begins. Some storms may take several hours to move into an area and may last for several days. When responding to a winter storm, keep the following guidelines in mind.

Cold weather itself, without any physical exertion, puts an extra strain on your heart. If strenuous physical activity such as shoveling snow, pushing a car, or even walking fast or far through deep snow is added to your body's overworked system, you risk serious or fatal results.

Avoid all unnecessary trips. If you are at home when a winter storm strikes, plan to stay there. Keep all animals inside if possible. If they must be outdoors, be sure to provide them with proper shelter to keep them warm and dry.

If you must be outdoors, wear several layers of loose-fitting, lightweight, protective clothing rather than a single layer of thick clothing. Mittens are warmer than gloves. Hoods should

be worn to protect your head and face. Cover your mouth to protect your lungs from extreme cold air.

Recovery

If the storm lasts more than one or two days, there is an increased possibility of utility failures and interruptions of services. This can lead to extreme hardship and even death from extended exposure to cold temperatures. Animals that live outside require additional feed and owners must make sure that the animals have water available. Although some livestock will eat snow and ice in the winter, this cannot be relied upon for all animals.

Use the following list of suggestions as you recover from a winter storm.

- ☐ After the storm, check on your neighbours and their animals. Be sure they have proper heating and sufficient supplies to get through the emergency.
- ☐ Check the roofs of your house and barns for damage from heavy snow. Remove the snow to prevent the roof from collapsing.
- ☐ Avoid overexertion while clearing snow by working slowly and taking frequent breaks, particularly if you become dizzy or tired.
- ☐ Check and replenish emergency provisions.
- ☐ Consider wind breaks such as shelters, sheds and fences to reduce the effects of severe winter storms on your livestock.

Drought and Extreme Heat

A drought occurs when there is no substantial rainfall for a long period of time. Since there is a great difference in the amount of rainfall different areas of the country receive, the amount of time it takes for drought conditions to develop varies.

Extreme heat is defined as temperatures well above the average high temperature, and lasting for several weeks. Extreme heat conditions can vary throughout the country. When drought and extreme heat occur at the same time, the conditions can be very dangerous.

Local community officials will alert you through your local newspaper, radio station, or television station when drought and extreme heat conditions exist in your area. Although extreme heat conditions are easily recognized, drought conditions often develop slowly and can only be tracked through local weather advisories and long range forecasts.

Prevention

The following guidelines will help you lessen the effects of a drought or extreme heat conditions.

Practice personal water conservation measures to avoid depletion of water supplies both before and during periods of extended drought. Consider establishing alternate sources and supplies of water for your crops and your livestock.

Conserve electricity. During periods of heat and drought, people use a lot of power for air conditioning. Excessive use

of the community's energy supply could lead to power shortages or outages. Insulate your home to reduce the demand for air conditioning. Also, keep the thermostat set at moderate levels.

Consider creating artificial shade and installing humidifiers to keep livestock cool.

Preparedness

All family members should learn to recognize the symptoms of heat impairment, and administer appropriate first aid to livestock. Causes of heat stroke, and dehydration are:

- Lack of appropriate outdoor shelter for an animal;
- Animals not accustomed to the heat; and
- Excessive exercise in hot and humid weather.

Response

In addition to recognizing the signs of heat stress in animals, follow these guidelines when responding during periods of drought and extreme heat.

Keep livestock in areas where they have access to shade.

Provide animals with plenty of water. It will also help to hose off an animal periodically.

Provide plenty of fresh cool water for all animals to drink. The water supply should be in a shady place as some species may not venture into the sun if it is very hot.

Be sure to provide salt licks to animals that require them regularly.

Recovery

Droughts probably cause the largest number of deaths in livestock throughout the world. A prolonged drought can also have a serious economic impact on a community. Loss of crops or livestock can severely reduce agricultural production resulting in food shortages. Shortages of water and electricity also result from increased demand during a drought. Combined with extreme heat, droughts can make life very difficult, especially if it lasts for a long time. Follow these guidelines when recovering from extreme heat or drought conditions.

Continue to conserve water after the drought appears to have ended.

Avoid any activities that could precipitate fires. As the forest dries up, debris falls on the forest floor. Forests are then prone to fire, even from the slightest spark.

Wild Fires

A wildfire occurs where there is uncontrolled burning in grasslands, brush, or woodlands. Wildfires destroy property and valuable natural resources, and may threaten the lives of people and animals.

The threat of wildfires is increasing in Canada. This is due to population growth in rural communities and the rural and urban interface.

Wildfires can occur at any time of year, but usually occur during dry, hot weather. Government agencies combine to give wildfire probability forecasts. Local radio and television stations also broadcast information and warnings on local fire conditions.

Wildfires are normally recognized by dense smoke, which may fill the air over a large area.

Prevention

There are many actions you can take to reduce the effects of wildfires. Many of these are listed below.

- ☐ Use only fire-resistant materials on the exterior of your home or barn, including the roof, siding, decking, and trim.
- ☐ Consider installing sprinkler systems for buildings on your property as well an outdoor system for your lawn.
- ☐ When constructing pools and ponds, make them accessible to fire equipment - they may serve as a source of water for fighting wildfires.

- ☐ Have hoses that are long enough to reach all parts of your building.
- ☐ Use fire carefully and wisely so that you do not cause a wildfire. Teach safe practices to family members and employees.
- ☐ Keep your chimney clean and install a spark arrestor.
- ☐ Avoid open burning during dry weather. Store firewood away from your home and barns.
- ☐ Store hay, sawdust, or straw in a building separate from where animals are housed. This is especially important during the summer when freshly cured hay can suddenly ignite from spontaneous combustion.
- ☐ Be extremely careful with open flame when shoeing horses or welding.
- ☐ Gas and other hazardous materials should be stored in buildings separate from animals.
- ☐ To reduce the risk of structural fires, make sure that the wiring in your barn is in good condition. Remember that rodents can chew through the wiring, putting the barn at risk for fire.
- ☐ Clear leaves and other vegetation off roof surfaces and out of gutters on a regular basis. Meet local fire code requirements by clearing brush away from all structures.
- ☐ Implement and enforce no smoking policies on your property.
- ☐ Teach all personnel working with livestock where the fire extinguishers are and how to use them. Practice a fire drill every month throughout the fire season.

Preparedness

The following list outlines steps that you can take to prepare for wildfires.

- ☐ Learn to recognize dangerous fire conditions and consult with your local fire department on how to improve the safety of your house and barns.
- ☐ Provide wide spacing between trees. Cut back any vegetation overhanging buildings.
- ☐ Clear vegetation, including dead brush, from around your house or barn to serve as a fire break. Fire breaks should be at least 30 feet wide for all structures and 75 feet wide for homes built in pine forests.
- ☐ Use fire-resistant plants on your property. Check with local fire officials or a nursery about the best species for your area.
- ☐ Plan several evacuation routes for your livestock in case fire blocks your escape. Make arrangements ahead of time for a place to temporarily relocate them. Fairgrounds, parks, racetracks, large animal shelters, or with family or friends may be options available to you.
- ☐ Make sure your trailer is in good condition and keep the gas tank of your car or truck filled. If you do not have enough trailers, identify who else could help you evacuate. Practice your buddy system, teach your horse how to load into a trailer, and practice your evacuation routes.
- ☐ Purchase rope or leather halters for horses and livestock because nylon halters can melt when they heat up in a fire. This may lead to deep burn wounds on the animal.
- ☐ Have fire tools handy at your home and in your barn: a ladder, garden hoses, fire extinguishers, gas-operated water pumps, shovels, rakes, and buckets.
- ☐ Keep your livestocks' vaccinations current.

Response

Use the following list as a guide to responding to a wildfire.

Place a sprinkler on the roofs of buildings, and on anything else that might be damaged by a fire, to wet down the surface. Be sure that your efforts do not jeopardize the water supply and pressure needed by firefighters.

If officials evacuate your area, leave immediately. Fires can spread rapidly and unpredictably. If you have a large number of livestock, it will take much longer to evacuate these animals.

If you are unable to take livestock with you, do not leave them confined. Let them out of the barn and close all the doors. Turn off the power and gas and disconnect any electrical fences so that the animals will not injure themselves trying to escape. (These recommendations are for livestock, poultry and other types of animals; house pets should be leashed/crated and taken with you.)

Recovery

The following list provides suggested actions during the recovery phase of a wildfire emergency.

Consult with your insurance agent and have damages assessed as soon as possible. Document and take pictures or a video of damages.

Wildfires can leave scorched or barren land, reducing grazing land of livestock. This land may take many years or decades to return to its previous condition. Major fires can destroy ground cover, which leads to erosion.

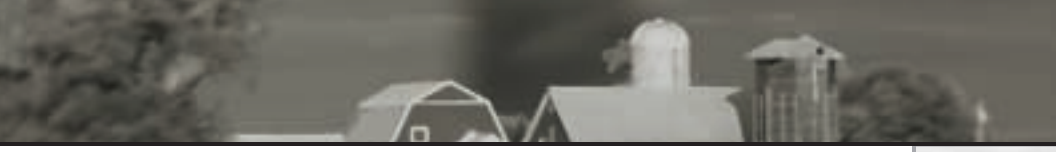
The most common cause of death during fires and in the days that follow is complications from smoke inhalation. All animals exposed to fire should be monitored for smoke inhalation pneumonia. A veterinarian should be consulted immediately for any burn injuries. Burn injuries can be difficult and expensive to treat, as they often require intensive care.

Care must be taken when re-entering burned areas. There may be hot spots that could flare up without warning. Also, partially burned structures and trees can be very unstable, and may suddenly fall. Therefore, do not tie animals to burned trees.

Check any areas where animals and people will be for dangerous debris. Consult medical personnel about tetanus vaccinations for your family and animals.

Debris from burned buildings should be removed before animals re-enter the area. Metal pipes heated during a fire may be coated in toxic residues from the heat damaged galvanized components. If this occurs to your pasture fences, they need to be cleaned before any animals come in contact with them.

Replant burned forests quickly and efficiently in order to reduce soil erosion. Landslides, mudflows, and floods can follow wildfires as a result of damage to the vegetation.



Tornadoes

Tornadoes are violent rotating columns of air that descend in a funnel shape from thunderstorm cloud systems.

Tornadoes can occur anywhere at any time. Local and national media issue tornado watches and warnings.

Prevention

The following is a list of prevention activities.

- Follow relevant building code practices such as the use of wind-resistant design.
- Replace windows in barns with materials that will not shatter and cut animals or people when broken. Store, or secure any loose materials, including strapping. Label hazardous material tanks such as heating, oil, or propane.
- Build tornado shelters for family and livestock.

Preparedness

Tornadoes develop during severe thunderstorms and hurricanes. Not all thunderstorms and hurricanes will create tornadoes, however, the potential is there. During violent weather, stay tuned to a local television or radio station for tornado reports.

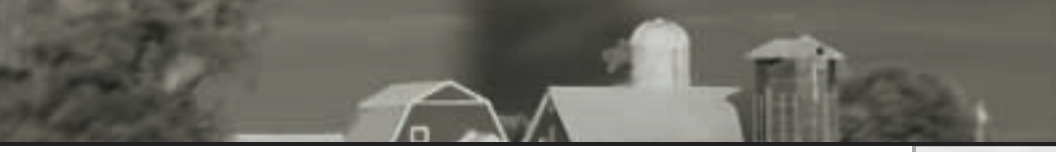
The best preparation for a tornado is to designate a tornado shelter for you, your family and your animals. Tornado shelters are safest when they are underground - a storm cellar, or basement away from windows offers the best protection.

If a storm shelter or basement is not available, follow these guidelines when preparing for the hazard of a tornado.

- Plan shelter under heavy furniture or mattresses near an inside wall on the ground floor of your house. Keep animals in your household confined in a safe place.
- Ensure identification tags are on your livestock, at all times.
- Conduct tornado drills with your family.
- Know the location of the designated shelter where you work or go to school.
- If a watch is issued, turn livestock out into open pasture to avoid injuries from collapsed buildings. Try to turn animals out into areas where they will not be harmed by flying debris. Ideally, this is a low-lying area where animals can choose to lie down and protect themselves.

Response

The destructive path of a tornado averages about 200 metres in width and 25 kilometres in length. Tornadoes can travel up to 100 km/h, with wind speeds close to 700 km/h in the tornado's centre. In close proximity, a tornado sounds like the combined roar of several jet engines. The immediate threat from the violent winds of tornadoes and the debris hurled through the air, is danger to life and damages to property and livestock.



Take the following actions when responding to tornadoes.

- If you have a storm cellar or shelter, go to it immediately with your family and animals. If shelter is unavailable, go to your basement and take cover under a heavy workbench or stairs.
- If your home has no basement, stay in the centre of your house away from the windows or in a small room away from outside walls on the ground floor. Take cover under solid furniture or mattresses. Protect your head.
- Do not drive. If you are driving and spot a tornado, get out of your car and go into a nearby building or ditch. Protect your head and stay low to the ground.
- After a tornado passes, stay tuned to the local radio or television station to get an all-clear signal before leaving your shelter. Sometimes more than one tornado will develop during a violent storm.

Recovery

Tornadoes are part of severe thunderstorms and may also bring the dangers of lightning, high winds, floods, hail, and flash floods from extremely heavy rainfall. Other risks include:

- Building collapse
- Fallen trees and downed power lines
- Broken gas lines
- Broken sewer or water mains
- Fires

Be alert to additional hazards, and take the following precautions.

- Consult with your veterinarian if you are concerned about the health of your livestock. Also, consult with your agricultural ministry, or extension workers if you are concerned about contamination of feed for your animals or livestock.
- Re-enter buildings with extreme caution.

- Be alert to fire hazards such as broken electrical wires or damaged electrical equipment, gas or oil leaks, other hazardous materials, and smoldering piles of wet hay or feed. Report downed utility lines and other hazards to appropriate authorities.
- Do not use food that may have been contaminated. This includes any feed for livestock.
- Keep animals safely confined until the area has been cleared of debris.

Earthquakes

An earthquake is a wave-like movement of the earth's surface. The earth's crust and upper part of the mantle push and move against one another along what are known as fault lines.

The damage caused by an earthquake depends on its magnitude and intensity. The most widely known indicator of magnitude, the Richter scale, measures the energy released when large rock masses in the upper earth suddenly shift. A change of one full point in the Richter scale represents a difference in energy released by a factor of 30. Thus, an earthquake of magnitude 7 is roughly 30 times as powerful, in terms of energy released, as one of magnitude 6.

Earthquake monitoring is conducted by the U.S. Geological survey, the U.S. National Oceanic and Atmospheric Administration, the Geological Survey of Canada and universities throughout the United States and Canada. However, the exact time and place an earthquake will occur still cannot be predicted.

Prevention

Listed below are actions that can be taken to minimize the harmful effects of earthquakes.

- ☐ Check with your local emergency officials for potential earthquake and fire risks.
- ☐ Bolt down or reinforce water heaters and other gas appliances. Use flexible gas line and appliance connections wherever possible. Know where to turn off the gas supplies to your house or barn.
- ☐ Place large and heavy objects on lower shelves and securely fasten shelves to walls taller than 5 feet. Brace-anchor tall or top-heavy objects.
- ☐ Do not place animal enclosures underneath things that might fall on them during an earthquake, such as a chimney or heavy retaining wall. Include a pair of bolt cutters in your disaster kit. Gates can sometimes become damaged and unable to open.
- ☐ Attach tabletop equipment (such as computers or typewriters) with industrial strength Velcro. Overhead lighting fixtures should be anchored solidly in place.
- ☐ Deep plaster cracks in ceilings and foundations should be investigated and repaired by experts, especially if there are signs of structural defects. Be sure the house is firmly anchored to its foundation.
- ☐ Purchase earthquake insurance for your home and its contents. Renters may also be able to purchase earthquake insurance for their belongings.
- ☐ Support local land use and building codes that regulate land use along fault lines. Modern engineering can produce structures that resist earthquake damage; existing buildings can be retrofitted to better withstand tremors.

Preparedness

If you live in an area with a risk of earthquakes, prepare yourself, your family and your livestock for earthquakes by following the guidelines listed below.

- ☐ Prepare an earthquake plan and conduct family earthquake drills. Include animals in these exercises.
- ☐ Discuss earthquakes and other possible disasters so that younger members of your family understand how to take action without fear.
- ☐ Designate an out-of-province contact and be sure that all members of your family know how to reach this person.
- ☐ Know where the safest places are at home, work, or school.
- ☐ Teach responsible members of your family how to turn off gas, electricity, and water at main switches and valves. Check with your local utility offices for instructions.
- ☐ Learn how to extinguish small fires and to provide emergency first aid.
- ☐ Be prepared to survive for 72 hours without any assistance. Remember to include supplies for your livestock.
- ☐ Test your radio, flashlights and batteries when daylight savings time arrives. Keep spare bulbs for flashlights.
- ☐ You may also learn a lot by helping to organize and support earthquake preparedness programs in your community. Your community may conduct public education programs including earthquake drills.
- ☐ Earthquakes have the potential to trigger other emergency conditions such as tsunamis (long, high sea waves), fires, major landslides, dam failures, power plant ruptures, and hazardous material spills. Be prepared for all of these disasters if you live in an earthquake-prone area.

Response

Earthquakes usually occur without warning. If an earthquake is occurring in your area:

- You will feel a trembling in the ground or floor.
- You may notice hanging lights or planters starting to sway.
- You may even feel slightly dizzy, and
- Animals may also become nervous and apprehensive – Reactions include biting, kicking, or scratching.

The actual movement of the ground is seldom the direct cause of death or injury to humans and livestock. Here are some common causes of earthquake-related casualties:

- Partial or total building collapse - toppling chimneys or walls, falling ceiling plaster, light fixtures, and pictures.
- Flying glass from broken windows and skylights (the danger may be greater from windows in high-rise structures).
- Overturned bookcases, fixtures, and other large furniture and appliances falling on people and animals.
- Fires resulting from broken chimneys and broken gas lines.
- Electrocution from fallen power lines; and
- Exertion and fear leading to heart failure.

To reduce injury and death to people and animals, special precautions which should be taken:

- Broken gas lines are a major cause of earthquake-related fires. Following an earthquake, turn off any supplies of gas to your home or farm buildings.
- Above all else, remain calm. Try to reassure others. Think through the consequences of any actions you take.
- If you are indoors, stay there, and remember the safety routine to drop, cover and hold. Take cover under a sturdy piece of furniture (such as a heavy desk, table, or bed) and hold onto one of the legs. In the barn, tools, equipment and other

objects on the walls and in the rafters are likely to fall, and can cause serious injury to people and animals. Stay away from objects that can shatter (such as windows, mirrors, or skylights) and chimneys.

- If you are outside, get away from buildings, walls, utility poles, downed wires, and all other objects that could fall.
- If you are in a car, stop as quickly as safety permits but stay in the vehicle until the shaking stops. Avoid bridges, underpasses, and buildings.
- Check for injuries and attend to them. Seek medical help for humans and animals as necessary. Check for fires or other hazards.
- Remember that animals can be frightened by an earthquake too. Be alert for any aggressive behaviours displayed by an animal. An animal may bite out of fear and stress.

Recovery

Earthquakes can cause damage to buildings, utility lines, bridges, or dams. Water supplies can become contaminated by seepage around broken water mains. Damage to roadways and to other means of transportation may create food and other resource shortages for people and animals if transportation is interrupted. Use the following guidelines to safely recover from earthquakes.

- If you are unsure of a building's safety, do not enter it until it has been inspected by a qualified person. Aftershocks may cause additional damage to buildings.
- Check to make sure that fences used to confine animals are intact. If animals have escaped, they will often return to their regular feeding site at mealtime and may be recaptured.
- Keep animals safely confined until debris is removed.

- Check utilities. If you smell gas, open windows and shut off the main gas valve. Shut off electrical power if there is damage to your house wiring. Leave the building and report damage to the appropriate utility companies. Do not use matches, lighters, or open-flame appliances until you are sure there are no gas leaks. Do not separate electrical switches on appliances if gas leaks are suspected, i.e., if lights are on, leave them on. If they are off, leave them off.
- Do not eat or drink from open containers near shattered glass and do not offer these to animals either. Remove any contaminated sources of food or water so that animals can not consume them.
- Open closet and cupboard doors carefully, watching for falling objects. Immediately clean spilled medicines and potentially harmful materials. Wear gloves when you do this.
- Check to be sure that sewage lines are intact before flushing toilets. Check to see that your waste-handling facilities have not been disrupted and manure is not leaking into the environment or groundwater.
- Be prepared for additional aftershocks. While the aftershocks are usually smaller than the main shock, some may be large enough to cause additional damage.
- Do not use your telephone except for emergency calls. Listen to your radio for damage reports and information.
- When it comes time to repair your house and farm buildings, ensure that the repairs will increase the structure's ability to withstand future quakes.

Hazardous Materials

Hazardous materials can be released by accident, or in disasters. They are dangerous to people and livestock that are exposed to them, and may contaminate the environment and the human food supply. Animals exposed to hazardous materials are also a potential threat to humans.

Farmers are familiar with the appropriate methods for handling commonly used hazardous materials, such as herbicides, pesticides, and fertilizers. Hazardous chemicals should be dealt with by qualified persons. Depending on the scale of the chemical release, local, provincial, or federal government officials may become involved in the security and clean-up operations. Often these groups are assisted by industry.

Prevention

Hazardous materials are common in many households and farm operations. Compounds such as detergents, cleaning materials, herbicides, and pesticides are potentially dangerous if people or animals are exposed through incorrect handling or spillage. The following steps will help lessen the impact of a hazardous materials incident.

Hazardous chemicals should be stored in safe places where children and livestock cannot be exposed.

Storage areas must be protected against freezing and overheating of hazardous materials. They should also have separate locks.

Chemicals should be stored on the floor or lower shelves to prevent falling and spilling. Lips are recommended for all shelving upon which hazardous materials are stored.

Preparedness

You should identify potential hazards in your immediate environment and learn about proper storage. You should also know the medical symptoms these toxins may cause if a person or an animal has been exposed. If you suspect your livestock have been exposed, consult a veterinarian.

Your local fire department, or emergency and Ministry of Environment officials can provide you with information on hazardous chemicals in your community. Individuals and livestock facilities should have a plan for dealing with hazardous materials on their property.

Response

Unlike many other emergencies in which volunteer help is welcome, in a hazardous materials emergency there is little that untrained members of the public can do. Any information you can offer should be given by telephone and from a safe distance.

Livestock exposed to low levels of hazardous materials may not appear affected, but their meat, milk and eggs may contain residues that present health risks for humans. Contact a specialist for advice if you think your animals have been exposed. Other sources of information regarding hazardous materials are:

- Disease diagnostic laboratories
- Hazardous materials teams in some areas, and
- Colleges and schools of veterinary medicine

Recovery

A major hazardous materials incident may require recovery advice from various levels of government (local, provincial, and federal).

Radiation Hazards

Radiation hazards include problems associated with nuclear power plants, nuclear weapons accidents, and the manufacture, transport, and storage of nuclear and other hazardous materials.

Fixed nuclear facilities (power plants, storage facilities, and research reactors) are generally safe and constructed to contain any radiological release. However, there is a possibility that an incident could cause a release of radioactive materials. To prepare for this possibility, government agencies require that all power plants and emergency response agencies plan for such problems. They must also conduct practice exercises to determine the effectiveness of the plan.

If radioactive material is released into the environment it forms a plume (like a cloud). The plume cannot be detected by sight or smell and may contain various radioactive isotopes (elements). The direction and speed of the plume depends on weather conditions, especially the wind. The ingestion pathway zone is so named because radioactive material may be deposited on crops and grasses and contaminate animal and human food.

The best protective action for people is evacuation, but in some circumstances taking shelter may be recommended. These recommendations should be made well in advance of the plume reaching the affected areas. Precautionary actions for livestock typically involve putting animals under shelter and using protected food and water. When animals are sheltered they should be fed only stored, covered feed and water that is protected from radioactive fallout.

If livestock need to be evacuated along with humans, procedures discussed elsewhere for evacuation should be followed. Use routes that would not normally be used as evacuation routes for people to avoid the possibility of slowing down traffic if your livestock vehicle breaks down.

If livestock are left outside and become exposed to radioactive material, a veterinarian should examine the animals as soon as safety permits. Some forms of external contamination on animals can be washed off. If none of the material has been absorbed, the animal may not be contaminated. It is important that a veterinarian check animals for exposure. No products should be used until appropriate laboratory tests for radioactivity are performed.

The rapid evacuation of people may require leaving livestock in barns. Officials may prohibit entry into the area if it is radioactive, however, short trips may be allowed to care for and milk farm animals. Officials will determine the frequency, duration, and equipment required for these trips.

Prevention

Follow these guidelines in order to improve your personal preparation and prevention for radiological incidents:

- ☐ Be familiar with the emergency alert network.
- ☐ Make sure that there is adequate shelter on the premises for animals.
- ☐ Ensure that there are protective covers for feed and water resources.

☐ Know the evacuation sites and routes.

☐ Know about nearby nuclear facilities, what they do, worst-case scenarios, what a radiation release would contain, and protective measures against these elements.

Preparedness

The following actions can be taken to prepare for radiation hazards.

☐ If you live near a fixed nuclear site, know the emergency alert system. This gives specific directions for actions, announcements describing the incident at the nuclear facility, evacuation routes, emergency shelter locations, and other actions to be taken.

☐ Know where the emergency shelters for your area are located to avoid searching at the time of the incident.

☐ Prior arrangements for protection, or evacuation of livestock are also important. A barn, thick grove of trees, or trench silo might shelter them against radioactive fallout. Practice will help accustom animals to temporary shelters.

☐ Arrangements with family or friends outside the evacuation area for temporary housing of livestock should be made in advance. Without planning, feed and water resources may become critical at the host site.

☐ Control of fallout into water and feed supplies may be difficult. Most radioactive fallout particles are heavier than water. Therefore, in bodies of water with little or no turbulence, the surface water consumed by animals will be safe to drink within 10 to 14 days. Other water sources such as water troughs can be covered temporarily to protect the water from immediate fallout.

Response

If the emergency alert program is activated, listen to the designated emergency alert station on the radio or television. Follow the directions closely. If evacuation notices are given it is very important that they are obeyed as soon as possible. The closer the farm is to the incident, the less time is available to reach shelter without endangering lives. Follow instructions carefully, close up the house and leave quickly.

Recovery

If there is a release of radioactive material, emergency managers will secure the entire area where possible radiation exposure may have occurred. Before anyone is permitted to re-enter the area, careful monitoring will assure the safety of residents. Re-entry might be permitted under supervision. Livestock feed and water supplies should be checked for radiation. Decontamination of any object is difficult and can be hazardous. Only people specifically trained in decontamination should attempt this process.

Module II:
The Farm Gate Emergency Guide

This Module provides you with simple, step-by-step procedures to assist you in preparing your individual Farm Emergency Plan. The "building blocks" consist of the nine Essential Elements identified in Module I, and important questions that must be answered in order to prepare your Plan. Module II will provide detailed information to help you answer these questions.

Module II will provide the information you need to prepare your Plan. To further assist you, Module III is an example of a Farm Emergency Plan so you can see what the final product might look like. Module IV contains further information in the form of detailed technical Fact Sheets that you can use for your individual situation.

Essential Elements (9)

1. Roles/responsibilities of home owner/rural resident
2. Farm assets
3. Communications
4. Health, safety & food
5. Standby power and other energy sources
6. Water supplies
7. Health, safety & feed – Plant & animal
8. Environmental
9. Finance and administration

Essential Elements

1. Roles / responsibilities of home owner / rural resident

As farm owner/rural resident, are you aware that you are responsible for ensuring that everyone involved in your farm operations as well as your family members understand what to do in the event of an emergency?

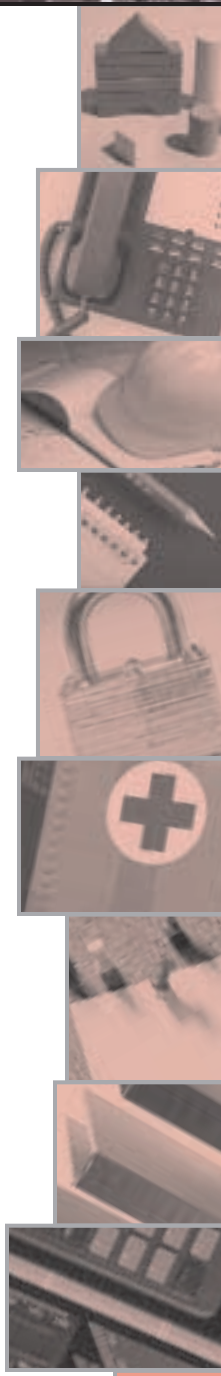
Someone must be in charge in an emergency. The system for managing resources, analyzing information and making decisions in an emergency is absolutely essential.

? Who is in charge of emergency planning and response activities on the farm?

- Home owner/rural resident
- Family member
- Hired help
- Others? Neighbors, co-op, etc.
- Do farm employees, family members & neighbors know their specific responsibilities in the emergency planning process?

? What are the Emergency Manager's specific responsibilities?

- conducts a hazard analysis
- develops the plan
- activates plan and mobilizes the equipment and people
- manages the response



- analyzes the impact
- awareness, training and exercises
- coordinates the recovery stage
- maintains and up-dates the plan on an ongoing basis

? What are the responsibilities of employees, family members and others?

- assist with the development of the plan.
- know their individual responsibilities.
- participate in training and exercises (practice sessions).
- Does the home owner/rural resident know and understand the community emergency planning process, and other government (local and provincial) sources of emergency assistance?
- federal, provincial and local emergency plans.
- Emergency Preparedness Canada brochure "Expect the Unexpected".

2. Farm Assets

Do you have a detailed inventory of all your farm assets (vehicles, machinery, equipment, buildings, land, crops, livestock, etc.)? Have you prepared a farm site plan or drawing indicating the location of these assets?

Is your essential farm equipment and machinery (feeding, water, HVAC, tractors, trucks) in good running order? Is your equipment regularly maintained and serviced?

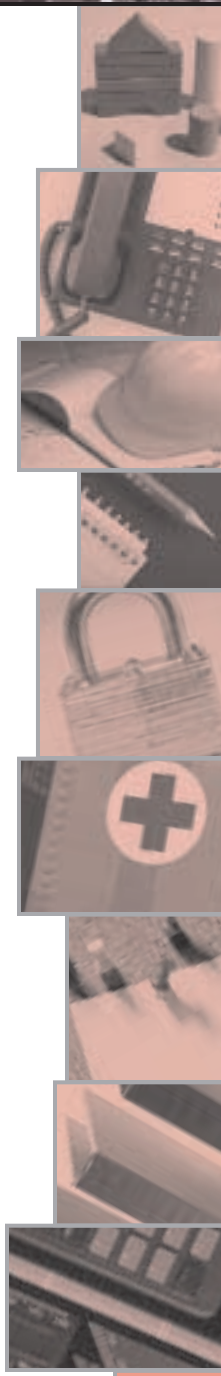
Are your farm buildings structurally sound and do they meet building code standards and is your HVAC equipment adequate for your needs?

Do you have a comprehensive inventory of your farm land, topography and soil types?

Do you have plans to deal with soil erosion, silting from floods and drought conditions?

Do you have an inventory for your transportation assets and requirements including standby fuel?

Can your farm road system withstand the effects of natural disasters?



3. Communications

Does your home and farm operation have adequate "back-up" communication equipment?

Do you have an inventory of all your communication equipment and devices?

- telephone
- radio, television
- cellular telephones, spare batteries
- computers, fax machines
- ham radios, MSAT telephones(satellite)
- CB radios

What are your back-up or stand-by devices in case of disruptions to your regular services?

Do you have a crank radio?

Have you identified your priorities and requirements?

Have you obtained cost estimates for your priority requirements?

Are your purchase requirements in line with your allotted budget?

Do you have a comprehensive, up-to-date list of all emergency contacts in order to obtain the resources necessary to cope an emergency? Do you have written, accurate, explicit instructions on how to get to your farm or rural residence for 911, or other emergency responders?

What is your local means of emergency notification/alert eg. radio, tv station?

Emergency Contact List

9-1-1

Most communities in Canada offer 911 service for fire, police and ambulance. Check to ensure that your area has 911 service.

Police

Fire

Ambulance

If 911 service is not available, add the above contact numbers from your local telephone directory.

Directions to get to home/farm

Family Doctor

Local Hospital

Family Information

Members

Phone:

- Home .....
- Cell .....
- Farm Office .....
- Schools .....
- .....
- .....

Hired Help/Employees .....

- .....
- .....
- .....

Neighbour(s) .....

- .....
- .....

Local Emergency Numbers

- General .....
- Poison Centre .....
- Hazardous Materials .....

Local Emergency Services .....

Emergency Radio Station .....

Agriculture Extension Services .....

Insurance Agent

- Office .....
- Home .....

Veterinarian

- Office .....
- Home .....

Electrician

- Office .....
- Home .....

Plumber

Office .....

Home .....

Suppliers (eg. Fuel, Feed, Chemical etc.)

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Transportation (eg. Milk, Grain, Livestock, etc.)

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Equipment/Machine Suppliers & Maintenance

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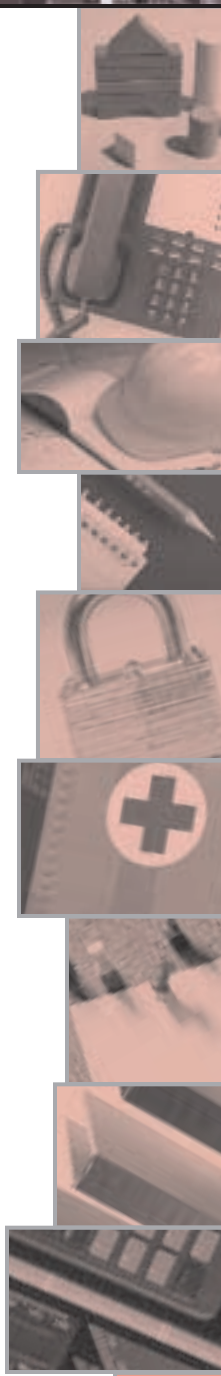
Other Important Numbers

Local Municipal Offices .....

Municipal Engineer .....

Building Inspector .....



Computer & Office Equipment Maintenance

Federation of Agriculture

Provincial Emergency Measures Office

Regional Director Emergency Preparedness Canada

Other

4. Health, Safety & Food

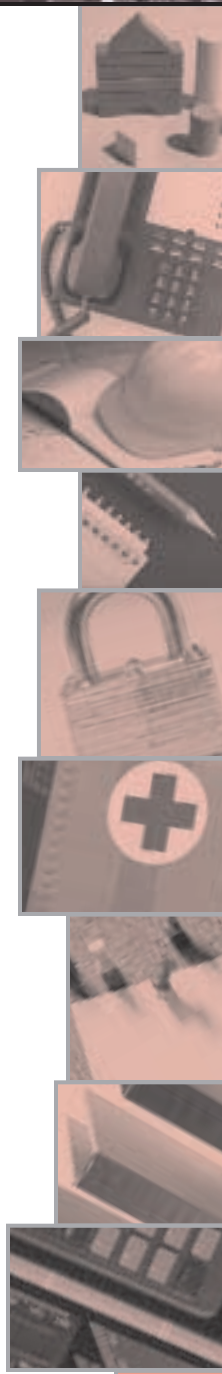
Is your family prepared to cope with an emergency until help arrives?

Do you have a general family emergency plan?

- awareness of emergencies
- how you would be warned
- staying in contact/family meeting place
- emergency telephone numbers
- evacuation procedures, alternative accommodation
- first aid and CPR training
- children, disabled, elderly, pets
- "safe place" in the home
- standby power for the home

Do you have adequate emergency supplies for the health and safety of your family and hired help?

- first aid kit
- water – two-week supply
- food – two-week supply
- sanitation supplies
- special foods, medicines
- clothing and bedding
- tool kit



Are you aware of food and water safety procedures?

- food spoilage/ contamination
- water contamination, purification
- food preparation
- Are you aware of the extreme stress on family members that often accompanies a disaster?
- welfare of your children
- critical incident stress management

5. Standby Power and other Energy Sources

Does your home and farm operation have adequate "stand-by" power supplies to cope with a power outage?

What are the emergency electrical power requirements for your farm operations?

Do you have a power grid sketch?

Do you have a standby power generator?

Does your installation meet provincial hydro standards?

Have you listed your current standby power equipment?

Do you know how to determine your emergency electrical requirements and the size of your system?

How do you obtain stand-by power equipment?

- purchase
- rent/lease/borrow

How do you operate and maintain your stand-by system including training and testing?

Do you have alternate sources of energy?

Are they part of your emergency standby power and energy plan?

- windmill/solar panels
- wood heat
- propane
- other

6. Water Supplies

Does your rural home and farm operation have adequate emergency water supplies?

What are the sources of drinkable water for human and livestock/poultry consumption? Where are they located?

- drilled well (deep)
- sandpoint well (shallow)
- ponds, springs, creek, river, lake, etc.

How is your drinkable water distributed throughout your home and farm operation?

- pump(s)
- gravity feed
- irrigation system
- plumbing

Do you have a means of storing emergency supplies of drinkable water for human and animal consumption?

- reservoirs
- plastic barrels
- water tanks
- cistern (underground reservoir)

Do you have a means of purifying and testing water for human consumption?

Do you know how to ensure your water supplies are protected and decontaminated after an emergency?

7. Health, Safety & Feed - Plants and Animals

How do you ensure the safety and well-being of your farm animals and crops in an emergency?

Animals

Do you have a current, detailed inventory of your livestock/ poultry etc.?

Do you have a site plan or drawing of your farm facilities indicating the location of your animals?

Are you aware of the health effects of different disasters (e.g. floods, drought) on your livestock and poultry?

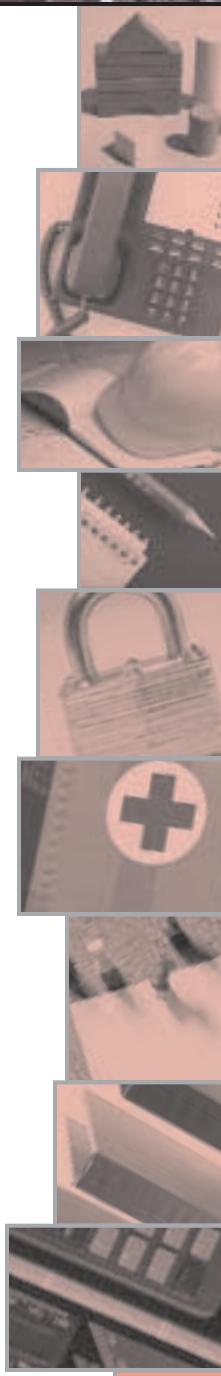
- pneumonia
- dehydration

Do you have access to emergency veterinarian services and back-ups?

Do you have adequate veterinary medicines, vitamins and dietary supplements for your animals? Are they within expiry dates?

Do you have adequate stand by feed and water supplies for your animals?

- inventory/stockpile of water and feed supplies
- numbers of animals
- quantities required
- essential equipment (mixers, silo unloader, conveyors, etc.)
- alternate sources of supply
- back up feeding systems-auto/manual
- feed storage facilities - barns, silo, etc.



Do you have an evacuation plan for relocating your animals on or off-site?

- inventory and tagging
- evacuation maps
- transportation
- accommodation and locations
- special arrangements, e.g. milking
- feed and water
- dietary supplements

Do you have a dead stock disposal plan and related sanitation procedures for farm recovery?

Plants/Crops

Do you have a current, detailed inventory of your crops (including stored feed) by type?

Do you have a site plan or drawing of your farm indicating the location of your crops?

Do you have an inventory of your soil type (soil mapping)?

Are you aware of the health effects of different disasters (e.g. floods, drought) on your crops?

- disease
- pests

Do you have access to emergency crop specialists?

Do you have adequate drainage of your crop land to deal with extreme flood and erosion conditions?

Do you use pesticides and fertilizers in protecting your crop assets?

Do you have a plan to assist crop recovery due to floods, droughts or winter kill?

- herbicides
- pesticides
- fertilizers
- irrigation
- dikes
- soil testing
- alternate external sources
- natural/hydroponic
- manual systems
- other

Do you have a plan to minimize the damage to crops and stored feed affected by water damage or other natural disasters?

8. Environmental Waste Water/Manure Disposal

Do you have adequate drainage systems to dispose of excess water and manure in times of flooding, freezing or other natural disasters?

Do you have an inventory and site plan indicating all potential sources of wastewater and manure?

What are your waste storage facilities and where are they located?

- septic tanks, covered manure storage
- holding tanks
- cess pools
- lagoons/liquid manure pits

How do you transport manure from barn to storage to field?

- stable cleaner and pump
- front end loader, tractor

Does your manure and wastewater disposal system meet the code and safety standards for proximity to wells, surface water, etc.?

Do you have standby power and/or alternate arrangements to transport manure from barn to storage to field?

Do you have an action plan to contain and clean-up an accidental spill due to normal operating conditions or a natural disaster?

Hazardous Materials

Do you have any hazardous materials (pesticides, fertilizers, chemicals, petroleum products-gasoline, diesel fuel, and propane, etc.) on your farm property and are they stored safely?

Have you completed an inventory of all hazardous materials and storage facilities on your farm?

Are you aware of the basic guidelines to reduce the risk of exposure to pesticides and chemicals?

Have you taken (or are you aware of) courses on techniques for safe handling of chemicals?

Do you have procedures for eliminating the source, containing the spill, and cleaning up in the event of an accident or natural disaster?

Does your emergency contact list contain the names of response specialists in chemical/pesticide spills?

Do you know how to access local, provincial or natural resources in the event of a spill or incident?

9. Finance and Administration

Are the equipment and records in your home and farm business office protected from the impacts of a natural disaster (fire, flood)?

Do you have an inventory of the essential records of your family and farm business?

- insurance policies
- contracts, deeds
- personal

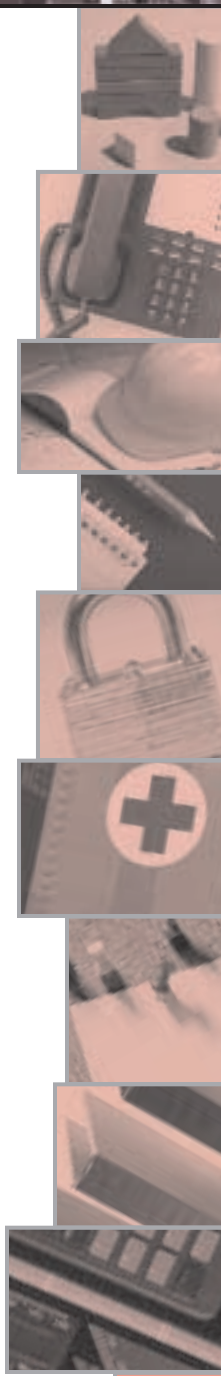
Are your records computerized? Do you have back-up discs?

Are important personal and business documents stored in a safe place?

Do you have duplicate copies of insurance policies, land/property deeds, wills, etc.?

Do you have alternate storage arrangements (on or off the farm) for your essential documents or computer records?

- safety deposit box



Are all of your insurance policies up-to-date and do they cover natural hazards?

- buildings
- equipment
- vehicles
- animals
- crops
- personal, business, disability and life
- business interruption insurance
- others

Do you have an annual meeting with your insurance agent/broker to review and update your individual home and farm operation insurance needs?

Are you aware of local, provincial and federal assistance programs for victims of natural disasters?

Are you aware of non-governmental assistance programs (eg. Red Cross, Salvation Army, etc.)?

Assembling your Farm Plan

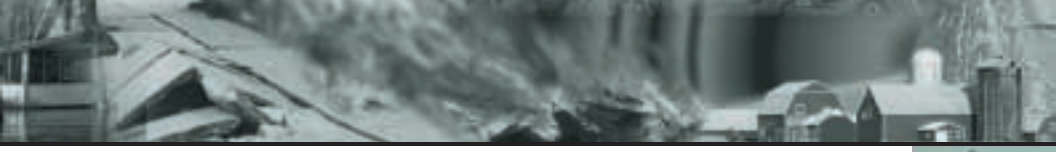
- List the emergency responsibilities of the owner/operator, family members and hired help, **(Essential Element # 1, see page 59)**.
- Assemble your basic farm information including ownership, address, telephone numbers, Farm Business Registration Number, and other information. The format is provided in **Module III**.
- Prepare a detailed listing of all your farm assets. Fact Sheet #2 provides a guideline. This information could be available from the business and financial records for your farm operation. Draw a site plan to scale showing the location of all your buildings, fixed equipment, fences and roadways. Use a

second sheet to sketch your farmland showing rivers, drainage, woodlots and crop descriptions. **(Essential Element #2, see page 61)**.

- Prepare a list of your emergency contacts and the alternative communications devices that are available to you. **(Essential Element #3, see page 62).**
- Prepare your "Family Emergency Plan" by looking at and answering the questions on health, safety and food. **(Essential Element #4, see page 67).**
- Determine standby power requirements for your home and farm operation. Start by reviewing the questions under **Essential Element #5, see page 69**. Then, look carefully at the detailed Fact Sheet on Standby Power in Module IV. You may require the assistance of your electrical contractor to determine your equipment and connection requirements. Local generator suppliers may also provide the necessary information. You should not attempt to install this equipment without the assistance of a qualified electrical contractor.
- Determine what your water supply requirements are for your farm and household in an emergency. See **Essential Element #6, see page 70.**
- Prepare your Farm Operations Emergency Plan by reviewing and answering the questions in **Essential Element #7, see page 71** on health, safety and feed requirements for your livestock and plants/crops.
- The Environmental component of your Farm Emergency Plan has two sections; wastewater and manure disposal, and hazardous materials. The questions in **Essential Element #8, see page 73** will identify environmental hazards on your farm and assist you in developing the necessary plans.
- The next section of the Plan identifies your essential farm records including the all-important insurance policies that ensures compensation for many of the damages resulting from emergencies impacting on your home and farm operations. As with electrical power, insurance is an area where you need expert advice. Review all of your insurance policies and new requirements with a fully qualified insurance professional. Reference **Essential Element #9, see page 75**.

In summary, it is extremely important that you test your plan to ensure that it is complete and meets all of your needs. Involve your family, hired help, neighbours (if appropriate), your local agriculture extension worker and local emergency officials who can offer sound professional advice.

Review, test, and revise your plan on an annual basis. Be sure that you, your family members and hired help are trained and practiced in the use of the Plan.



Module III: Farm Emergency Plan

An example

This Module provides an example of an Emergency Plan for a typical Canadian farm operation. The Farm Emergency Plan is part of the Preparedness stage of the emergency management process and it covers the farm home and farm operation. The Plan was developed using three elements:

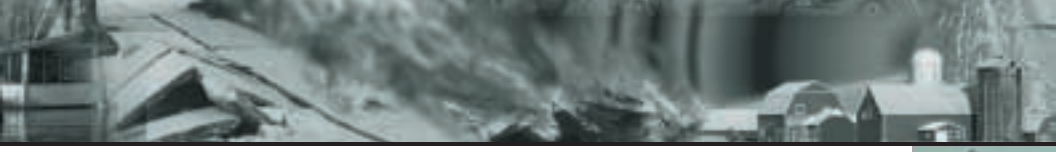
- interviews with farmers;
- answers to the questions in Module II, The Farm Gate Guide; and
- information provided by the Fact Sheets in Module IV

Note that each Farm Emergency Plan will be unique to a particular farmer according to commodity, location and climate. However, the approach and the components of the plan are similar and can be adapted to suit any farm commodity.

Farm Emergency Plan: An example framework

Silver Shadow Farms

Date Prepared - March 31, 20XX
Date Plan Revised*
Date Plan Revised*
Date Plan Revised*
Put date at the bottom of each page that has been revised.



Framework at a Glance

Part A: Background information about the farm

A1.0 Emergency Role and Responsibilities of Farm Owner

A1.1 Farm Owner-Emergency Responsibilities

A1.2 Disaster Risk to Silver Shadow Farms

A1.3 Training and Exercise Schedule for 1999-2000

A2.0 Farm Asset Information

A2.1 Basic Farm Information

A2.2 Site Plan for Silver Shadow Farms

A2.3 Inventory of Assets (see Fact Sheet #3)

A3.0 Emergency Communications

A3.1 Emergency Contact List

A3.2 Alternate Emergency Communication Devices

Part B: Farm Family Emergency Plan

B1.0 Health, Safety and Food for the Farm Family

B1.1 Emergency Family Meeting Place

B1.2 Decision to Stay or Evacuate Farm Family

B1.3 Emergency Home Food Supplies

B1.4 Emergency Home Water Supplies

B1.5 First Aid Kit

B1.6 Camping Supplies and Tools for Emergency Use

B2.0 Standby Power System for the Farm Home

B2.1 Standby Power System - Home

B2.2 Minimum Power Equipment for the Home

B2.3 Backup Standby Power Arrangements

Part C: Farm Operations Emergency Plan

C1.0 Health, Safety, Water and Feed Supplies for Livestock/Poultry

C1.1 Formula for Calculating Water Requirements

C1.2 Formula for Calculating Feed Requirements

C1.3 Consequences of Survival Water and Feed Rations

C1.4 Survival Water and Feed Rations - Table

C1.5 Livestock Inventory

C1.6 Inventory of Water Sources and Storage

C1.7 Feed Storage and Equipment Inventory

C1.8 Emergency Arrangements for Ensuring Water Supplies

C1.9 Emergency Arrangements for Ensuring Feed Supplies

C1.10 Other Essential Barn Equipment

C1.11 Emergency Arrangements for Ensuring Operation of Barn Equipment

C1.12 Livestock Evacuation Plan

C1.13 Emergency Arrangements to Evacuate Livestock

C2.0 Standby Power for the Farm Operation

C2.1 Standby Power System-Farm

C2.2 Minimum Power Equipment Required-Farm

C2.3 Backup Standby Power Arrangements

C3.0 Farm Environmental Preparedness

C3.1 Emergency Spill Kit

C3.2 Emergency Plan for Manure, Wastewater and Petroleum Spills

C3.3 Emergency Plan for Pesticides and Other Hazardous Materials

C4.0 Farm Finance and Administration Preparedness

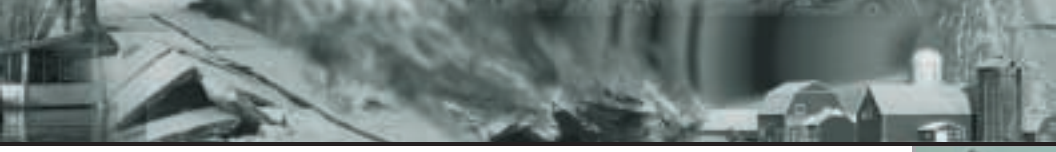
C4.1 Documents and Essential Records

C4.2 Insurance Policies

C4.3 Insurance Claims

C4.4 Federal/Provincial Disaster Assistance Programs

C4.5 Other Disaster Assistance Programs



Part A: Background Information About the Farm

A1.0 Emergency Roles and Responsibilities of Farm Owner

A1.1 Farm Owner - Emergency Responsibilities:

- Farm Owner/Rural resident is in charge.
- Develops and activates the Farm Emergency Plan.
- Coordinates emergency response and recovery.
- Assigns responsibilities to hired help and family members
- Ensures hired help and family members are trained in all aspects of the Farm Emergency Plan including standby power.
- Ensures Mutual Aid Agreement is in place with neighbors.
- Identifies the emergencies that may affect the farm.
- Updates the Farm Emergency Plan on an annual basis

A1.2 Disaster Risk to Silver Shadow Farms

History of disasters in the area indicate that emergency plans be capable of dealing with the following potential disasters:

A1.3 Training and Exercises for 1999 - 2000

Dec 1, 1998

Review the operation, maintenance and safety procedures of the barn Standby Power system with family members and part time employee (2 hours).

Jan. 1, 1999

Conduct a Power Outage exercise to test the ability of family members and the part time employee to do the morning chores on standby power (5 hours).

Oct 1, 1999

Review pesticide storage procedures with farm staff (1 hour).

Dec.15, 1999

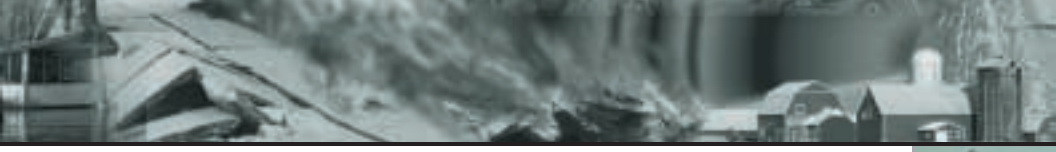
Review Emergency Contact List and Livestock Evacuation procedures (2 hours).

Jan.15, 2000

Owner to take First Aid training course by St. John's Ambulance.

Mar. 15, 2000

Review and update plan based on lessons learned from exercises.



A2.0 Farm Asset Information

A2.1 Basic Farm Information:

Name of Owner .....

Farm Name ..... Silver Shadow Farm .....

Address .....

.....

Postal Code .....

Legal Description

Telephone No. .....

Fax .....

Cellular/Pager .....

E-Mail .....

Farm Business Registration No. .....

Type of Farm .....

.....

Farm Personnel

Name .....

Telephone .....

Owner/Emergency Coordinator .....

.....

.....

Family Members .....

.....

.....

Hired Help .....

Emergency Contact (Relative) .....

.....

.....

Site plan for Silver Shadow Farms .....

.....

A3.0 Emergency Communications

A3.1 Emergency Contact List

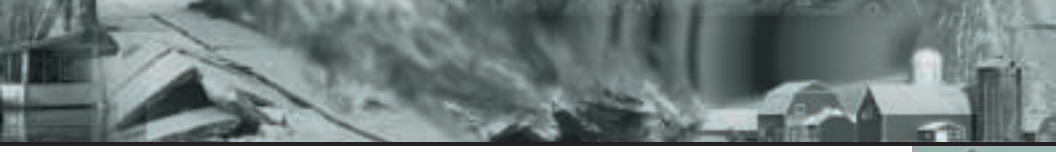
See Module II, Page 63.

A3.2 Alternate Emergency Communication Devices

Cellular Telephone

CB Radio Base Station at House and CB Mobiles in Tractors

Battery Radio and Crank Radio (with solar/battery/electrical adapter)



Part B: Farm Family Emergency Plan

B1.0 Health, Safety, Water and Food for the Farm Family

B1.1 Emergency Family Meeting Place

In emergency situations where transportation and/or communication to home, school and work is not possible, family members will attempt to meet at the following locations:

Option 1 Queen Elizabeth Junior High School

Option 2 Town Community Center

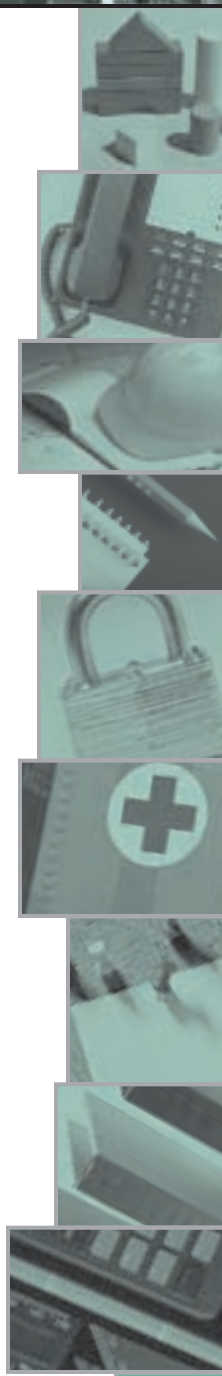
Option 3 If the above meeting places are not possible, family members will go to the local disaster center/shelter. Sign in at the victim registration center and leave a message for family and relatives indicating where you can be contacted.

In addition, family members will try to contact John and Jane Smith (grand parents) at XXX-XXX-0000 to indicate their status and where they can be contacted.

B1.2 Decision to Stay or Evacuate Farm Family

This Plan is designed to cover emergency situations where three possible decisions are made:

- To stay and continue to operate the home and farm;
- To evacuate the home and farm operation; or
- A combination of the above two decisions is made.



If Decision is to Stay:

- Follow the emergency procedures set out in this Plan (excluding the evacuation procedures).

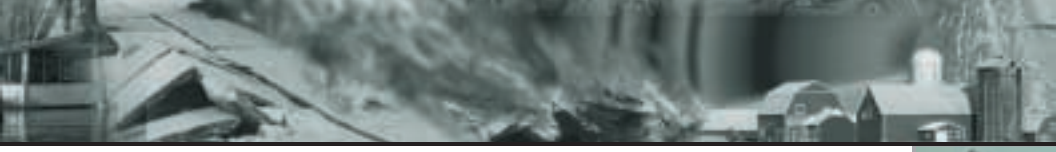
If Decision is to Evacuate the Farm Home:

- Inform all family members and employees of evacuation decision.
- Pack a disaster kit that contains necessary emergency supplies such as first aid supplies and medicines, water, food, tool kit, flashlight, and battery/crank radio.
- Turn off electricity, gas and water at main switches and valves.
- Secure windows, doors etc.
- Ensure fuel for personal vehicles.
- Secure chemicals and pesticides.
- Drain water from plumbing system if required.
- Confirm relocation sites and arrangements for family and employees.
- Secure livestock to be left behind.
- Secure livestock feed and water.
- Review map and decide on an evacuation route (attach map).

B1.3 Emergency Home Food Supplies

A separate three to four week supply of non-perishable food for five people is maintained in an independent storage pantry for emergency use only. The food supply requires little cooking or preparation. It is made up of the following items:

- Ready-to-eat meals: stews, spaghetti, fish, meat, poultry, baked beans, fruits, vegetables, cereals, cookies, trail mix, Kraft dinner, jellies, candies, oatmeal, peanut butter, jam, granola/power bars.
- Assorted freeze-dried individual camping meals for breakfast, lunch and dinner.
- Canned milk, juices, coffee, tea.



- Staples - salt, pepper, and sugar.
- Freezer Food - Meat and vegetables.

! Note:

The food items have been purchased in accordance with Health Canada's Emergency Food Consumption Standard and are turned over and eaten in accordance with the best before dates on the packaging.

B1.4 Emergency Home Water Supplies

The plan for ensuring minimum drinkable water supplies for the home in an emergency (minimum of 1 litre of drinking water per person per day) is that water will be supplied from the well located at the house.

The 5 KW Generator standby power system is designed to maintain all of the emergency home water requirements.

The 60 KW PTO generator designed for the farm operation is a back-up source of power for the home water requirements.

A hand pump attached to the plumbing system in the basement is capable of providing the basic home water requirements if required.

A supply of 24 empty plastic four-litre water containers and a 500-litre plastic water container is maintained in the basement for quick fill up in case other emergency options fail. This would provide a three to four week supply of drinking water, as well as water for personal hygiene, dish washing, flushing toilet etc. Water purification tablets, a supply of chlorine bleach and an eyedropper are stored with the water containers.

! Note:

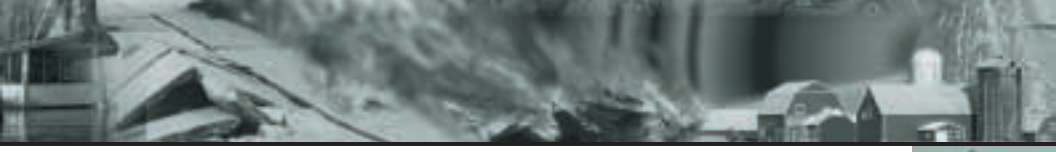
Add the following mixtures of standard laundry bleach (5.25% sodium hypochlorite) to each container to ensure that water is safe and drinkable. *Do not use industrial bleach:*

- One litre container 4 drops per litre of laundry bleach.
- Four litre container 16 drops per litre of laundry bleach.
- 500 litre container 1/2 cup per litre of laundry bleach.
- Replace stored water every 3 months.

B1.5 First Aid Kit

A complete home First Aid Kit is prepared and stored on the bottom shelf in the bathroom linen closet. It is contained in a backpack for ease of carrying. Contents include:

- First Aid Manual
- Sterile Adhesive Bandages in assorted sizes
- Two-inch and four-inch sterile gauze pads
- Hypoallergenic adhesive tape
- Triangular bandages
- Two-inch and three-inch sterile roller bandages
- Scissors
- Tweezers
- Needle
- Eye dropper
- Moistened towelettes
- Antiseptic
- Thermometer



- Tongue depressor
- Petroleum jelly
- Assorted sizes of safety pins
- Cleansing agent and soap
- Latex Gloves
- Sunscreen
- Emergency blankets
- Non-prescription drugs:
- Aspirin
- Anti-diarrhea medication
- Antacid
- Syrup of Ipecac (use to induce vomiting if advised by poison control center)
- Anti-histamine

A similar but smaller Car First Aid Kit is stored in the trunk of each vehicle.

B1.6 Camping Supplies and Tools for Emergency Use

Note: stored in waterproof, ready-to-go plastic camping containers

- Three-day supply of non-perishable food and water
- Mess kits, can opener, knife
- Battery operated radio and extra batteries
- Four flashlights and extra batteries
- Crank radio
- Sleeping bag, blankets, tent
- Change of clothes for each family member, hats, gloves, rain gear, boots
- Compass, multi-tool, whistle
- Large supply of waterproof matches
- Fire extinguisher

- Duct tape, rope
- Plastic sheeting and staple gun
- Camp stove and fuel
- Candles
- Bug repellent
- Toilet kits, toilet paper
- Personal Items: soap, shampoo, toothpaste, feminine supplies, towels, brushes etc.
- Cards, puzzles, games etc.
- Garbage bags
- Shovel, hammer, nails, crow bar
- Spare gasoline (2 x 23 litre containers stored separately)

B2.0 Standby Power System for the Farm Home

B2.1 Standby Power System - Home

A portable standby electric power system is in place to satisfy the minimum emergency home electrical needs. It includes:

- 5 KW Electric Generator (Gas)
- Transfer Switch
- Anderson Power Cord
- Receptacle
- 250-Litre Fuel Tank

For detailed technical information on Standby Power see Farm Emergency Fact Sheet #6, page 167.

B2.2 Minimum Power Equipment for the Home

The following home equipment is required to keep the farm home operational during an extended power outage of more than three days.

Water Pump	Freezer *
Oil Furnace Burner	Water Heater *
Furnace Blower	Washing Machine *
Refrigerator	Stove *
Sump Pump	
Home Lighting	

* These items are a second priority and can be operated on the standby power when the other emergency home equipment is not being utilized.

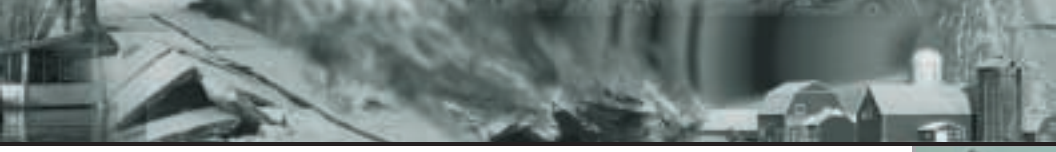
Alternate Heat Source:	Wood burning stove
Alternate Cooking Source:	Wood burning stove, camp stove, propane barbecue

B2.3 Backup Standby Power Arrangements for the Home

60 KW PTO generator for the farm operation is a back up source of power for the home requirements.

A Mutual Aid Agreement between Silver Shadow Farm and three neighbors provides for sharing PTO generators in the event that one should breakdown.

A generator rental/lease agreement is in place with Country Electric if required.



Part C: Farm Operations Emergency Plan

C1.0 Health, Safety, Water and Feed Supplies for Livestock/Poultry

C1.1 Formula for Calculating Water Requirements

No. of Litres/day × No. of Animals × No. of Days = Total Water Requirement*

C1.2 Formula for Calculating Feed Requirements for Livestock

Daily Feed Ration × No. of Animals × No. of Days = Total Requirement*

* Use table on next page to determine survival water and feed requirements.
* See sample inventory tables on next page to determine livestock, water and feed quantities.

C1.3 Consequences of Survival Water and Feed Rations

Survival rations under extreme winter or summer conditions are a short-term solution only. This could lead to animal stress which if not relieved can result in:

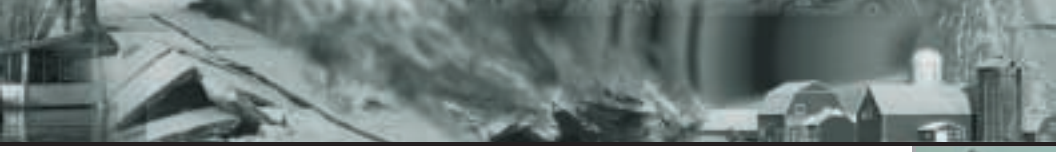
- Heat loss
- Malnutrition
- Dehydration
- Weight loss

- Production loss
- Miscarriages/abortions
- Pneumonia
- Viruses
- Fevers and other health problems
- Death

C1.4 Survival Feed and Water Rations for Farm Animals During Disasters

These are average quantities and may vary depending on the time of year and location. Consult your veterinarian for specific amounts of water and feed and type of feeds for your particular livestock.

Animals	Minimum Amount of Water Per Day	Minimum Amount of Feed Per Day
Dairy		
In Production	6.5 gal	20 lb. hay
Dry Cow	6.5 gal	20 lb. hay
Heifers	4.0 gal	10 lb. hay
Cow with Calf	7.0 gal	16 lb. legume hay
Calf (400 lb.)	4.0 gal	10 lb. legume hay
Beef		
Dry Cow	6.0 gal	12 lb. hay
Cow with Calf	6.5 gal	14 lb. hay
Calf	4.0 gal	10 lb. hay
Swine		
Brood Sow with Litter	3.2 gal	8 lb. grain
Brood Sow (pregnant)	2.4 gal	2 lb. grain
Gilt or Boar	0.8 gal	3 lb. grain



Sheep

Ewe with Lamb	2.4 gal	5 lb. hay
Ewe Dry	1.6 gal	3 lb. hay
Weaning Lamb	0.8 gal	3 lb. hay

Poultry

Layers	4.0 gal/100 birds	17 lb. feed/100 birds
Broilers	4.0 gal/100 birds	10 lb. feed/100 birds
Turkeys	12 gal/100 birds	40 lb. feed/100 birds

Horses

All Breeds	8.0 gal/1000 lb.	20 lb. hay/1000 lb.

C1.5 Livestock Inventory: An example

Type	Number
Dairy	
Beef	
Hogs	
Poultry	
Other	
Total	

C1.6 Inventory of Water Sources and Storage Mechanisms For Livestock/Poultry: An example

Barn well	
3 X 200-gallon heated stock troughs	
Plumbed water bowls	
Other - Farm Pond, barn roof runoff reservoirs	

C1.7 Feed Storage and Equipment Inventory: An example

Corn Silage	Depth			
Silo Size	Feet			
Dry Hay	No. of bales		wt/bale	
Dry Round				
Barn size				
Haylage	Depth			
Silo Size	Feet			
Grain (bin size)	Feet			
Prepared Feed				
Supplement				
Forages				
Straw				

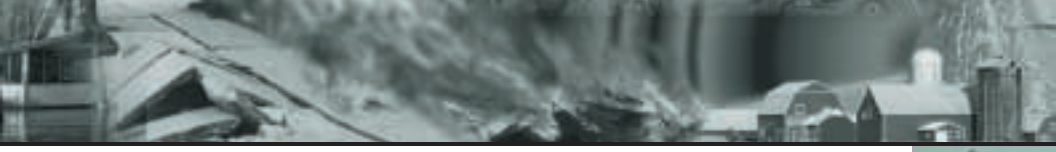
C1.8 Emergency Arrangements for Ensuring Water Supplies for Livestock/Poultry

The standby power system is designed to maintain and operate the livestock water pump and plumbing at the barn. Livestock water requirements are totally satisfied.

If the standby power system fails, arrangements are in place to connect a 15-inch gas driven water pump to the plumbing system in the barn which is capable of providing the basic water needs of the livestock.

Alternate water sources also include the river and barn roof runoff reservoirs if the above options fail.

Purchase an appropriate-sized plastic water container from the local equipment supplier; locate at barn; insulate if required; and arrange water fill ups with local tank truck firms and/or the Fire Department.



If water supplies fall below daily ration:

- Maintain daily water ration to core livestock/poultry
- Maintain daily water to pregnant livestock/poultry
- Provide survival water ration to remainder of livestock/poultry
- Make arrangements to cull some animals if required

If situation continues make arrangements to evacuate livestock to new accommodations with appropriate water supplies.

C1.9 Emergency Arrangements for Ensuring Feed Supplies for Livestock

The standby power system is designed to maintain and operate the livestock feeding system - silo unloader, conveyor belts, feed cart, grain auger etc. on an emergency basis.

If standby power fails, silos and grain bins are accessed manually and livestock feed is distributed manually to feeding stations as required.

Access silos and grain bins manually and feed accordingly.

If silos and bins are not accessible, order necessary livestock feed from supplier and feed livestock as needed from new location (tractor/wagon/wheel barrel/pitch fork etc.).

If feed supplies fall below daily ration:

- Maintain daily feed ration to core livestock/poultry.
- Maintain daily feed to pregnant livestock/poultry.
- Provide survival feed ration to remainder of livestock/poultry.
- Make arrangements to cull some animals, if required.

If situation continues, make arrangements to evacuate livestock/poultry to new location with appropriate water supplies.

C1.10 Other Essential Barn Equipment

- **Collection and Storage (HVAC):** collection machinery, heaters
- cleaning equipment etc.
- **Manure Handling and Storage:** stable cleaner, manure stacker, pump etc.
- **Ventilation:** ventilation fans, shutters/turkey curtains, etc.

C1.11 Emergency Arrangements for Ensuring Operation of Barn Equipment

The standby power system is designed to maintain and operate the barn equipment required to sustain minimum farm operations.

If standby power fails, activities such as collecting, storing, feeding, cleaning, manure handling and venting are done manually until backup standby power arrangements are made.

Hire additional labor to perform above manual tasks.

Dispose of spoiled product(s) in an appropriate manner.

C1.12 Livestock Evacuation Plan Options

Evacuate livestock;

Maintain livestock under shelter at the farm; or

Turn livestock loose to find their own way.

Determine if you must evacuate livestock due to safety concerns and/or local emergency orders. Seek advice from appropriate commodity marketing board officials.

C1.13 Emergency Arrangements to Evacuate Livestock:

- Refer to Evacuation Map for alternate evacuation routes and potential places for holding animals.
- Refer to Emergency Contact List.
- Refer to barn map for day-to-day routes that livestock use to enter/exit the barn.
- Mobilize own livestock transportation vehicles and contact commercial livestock haulers for additional transportation.
- Contact local commodity organizations/livestock dealers and arrange for alternate accommodation out of the disaster area.
- Make emergency arrangements for collection and storage facilities.
- Ensure all livestock are properly identified - ear tags and tattoos are considered to be a minimum. Add visible identification if necessary e.g. neck chains.
- Take livestock registration/identification books as well as records for daily food and water rations, medication etc.
- Arrange for an alternate supply of feed and water to be ready at the evacuation site-enough to last for a minimum of one week.
- Take a supply of rope halters, portable electric fencer, feeding buckets, forks and shovels, livestock medication/first aid kit, tool kit etc.

C2.0 Standby Power for Farm Operations

C2.1 Standby Power System - Farm

A "part electrical load system" designed to accommodate the minimum electrical needs of the farm operation's equipment is listed below. A 60 KW generator is mounted on a trailer to make it easy to transport down the driveway to the Transfer Switch located on the hydro transformer pole.

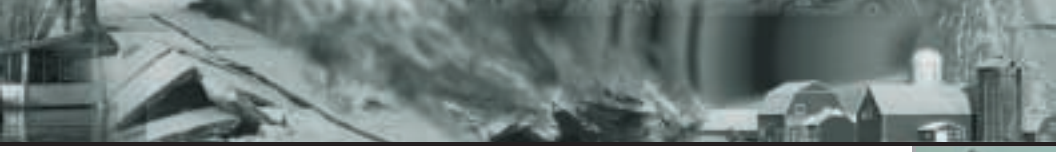
Rotating the operation of certain farm equipment throughout the day ensures that all of the farm activities get done. At the same time, this minimizes the possibility of overloading the generator causing damage. If the generator is also used to power the family home, extra care must be taken when rotating the use of electrical equipment at the barn and in the home. The system includes:

- A 60 KW Power Takeoff generator
- 120 hp tractor
- Transfer switch (400/200 Amp)
- Anderson power cord

* For detailed technical information on Standby Power, see Farm Emergency Fact Sheet #6, see page 167.

C2.2 Minimum Power Equipment Required - Farm

- 120 hp Tractor with PTO
- Silo Unloader 5 hp
- Manure Pump 7 hp
- Stable cleaner 3 hp
- Bulk milk cooler 2 hp
- Milking Machine 5 hp



- Fan .5 hp
- Water pump 1 hp
- Refrigerator .5 hp
- Electric Heater
- Lights
- 1.5 inch Gas Water Pump and Hoses

C2.3 Backup Standby Power Arrangements

A Mutual Aid Agreement between Silver Shadow Farm and two neighbors provides for sharing generators in the event that one should experience a breakdown.

A rental/lease agreement is in place with Country Electric to give priority in obtaining a suitable replacement generator in the event of a power breakdown in the standby power equipment.

C3.0 Farm Environmental Preparedness

The environmental emergency plan outlines the procedures and equipment to deal with farm incidents involving manure, wastewater, petroleum and hazardous materials such as pesticides (herbicides, insecticides and rodenticides) and other chemicals.

C3.1 Emergency Spill Kit

The spill kit is mounted on a ready-to-move pallet for easy transportation to the spill site. It contains:

- 4 bags of sawdust (to absorb liquids)
- 4 straw bales for making a barrier
- 50 empty sand bags
- Shovel, hoe, and rake

- 1 garbage can and 1 plastic drum (45 gal)
- Plastic garbage bags (to hold contaminated materials)
- Plastic Tarp (Containment basin etc.)
- 100 feet of rope
- Duct tape
- First Aid Kit, Fire Extinguisher, safety glasses, rubber gloves, coveralls and a helmet.

C3.2 Emergency Plan for Manure, Wastewater, and Petroleum Spills

Stop the source of the spill:

- Turn off pumping equipment
- Plug leaks

Contact one or all of the following:

- Fire Department
- Municipal Spills Expert
- Spills Action Center
- Ministry of Environment Expert

Contain the spill:

- Construct sand berm (mound) with loader.
- Use sandbags and bales of straw to block spill.

Clean up the spill:

- Remove contaminated soil with loader and/or other suitable equipment.
- Consult with spill experts for disposal and/or land application.
- Apply to land or dispose as required.

C3.3 Emergency Plan for Pesticide Spills or other Hazardous Materials:

Refer to farm pesticide book for information on specific chemical(s) or materials, or contact chemical supplier.

Eliminate the source of the spill if possible.

If needed, contact the following:

- Fire Department (911)
- Municipal Spills Expert
- Spills Action Center
- Ministry of Environment Expert
- Contain the spill in accordance with Ministry of Environment Regulations

Liquid Spills:

- Read label, wear rubber gloves, protective eyeglasses etc.
- Set up barriers.
- Cover spill with absorbent material (soil, sawdust, vermiculite, kitty litter, rags etc.)
- Sweep or shovel material into a waste drum and seal.

Dust, Granular, Powder Spills:

- Limit air movement
- Sweep or shovel into waste drum and seal
- Cleanup/Disposal of the Spill
- Consult with spill experts for correct decontamination and disposal methods.

C4.0 Farm Finance and Administration

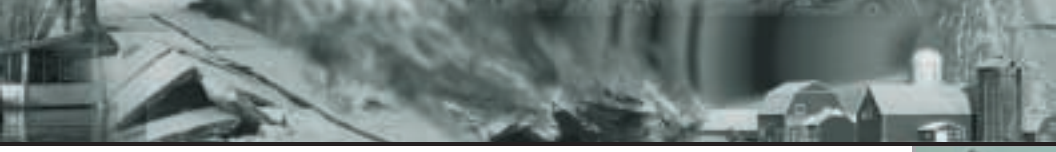
C4.1 Documents and Essential Records

Maintain list of valuable documents in safety deposit box:

- Real estate deeds, titles, leases, agreements
- Stocks, bonds etc.
- Will
- Contracts (Milk quota etc.)
- Loans, mortgages
- Marriage certificate/divorce decrees
- Income tax returns
- Birth certificates
- List of insurance policies
- Important receipts and bills of sale
- Insurance policies
- Farm asset inventories
- Livestock registration inventory

Maintain list of documents at home indicating where they are kept, e.g. in a secure fire/waterproof cabinet:

- Insurance policies
- Education certificates
- Drivers license/social insurance number
- Income tax
- Current livestock registration inventory
- Farm asset inventory
- Bank account numbers and balances
- Credit card numbers
- Copies of birth and marriage certificates



Duplicate essential records and store off-site in a safety deposit box or with a relative.

Review and update documents annually.

In an emergency evacuation situation or other disaster situation where you must leave the farm, bring relevant documents.

C4.2 Insurance Policies

a) Ensure copies are stored securely on and off-site.

b) Meet insurance agent on an annual basis to review and revise insurance coverage to correspond to current asset inventory, and to add new coverage such as environmental pollution (See Fact Sheet #9, page 199).

C4.3 Insurance Claims

Private Insurance Claims:

- Refer to policy
- Document loss and damage of all farm assets
- Document emergency costs/expenses
- Contact insurance agent ASAP
- Consult with insurance adjuster and finalize claim

Public Insurance Claims:

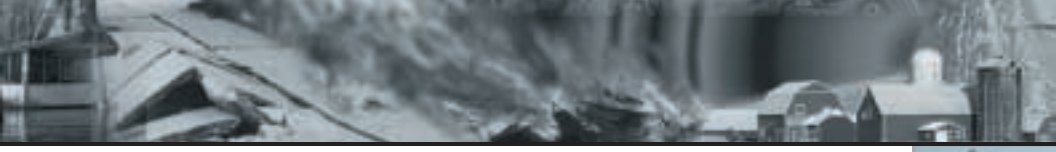
- Crop Insurance
- NISA
- Companion Programs

C4.4 Federal/Provincial Disaster Assistance Programs

Determine if the government is offering any financial assistance involving this particular disaster.

C4.5 Other Disaster Assistance Programs

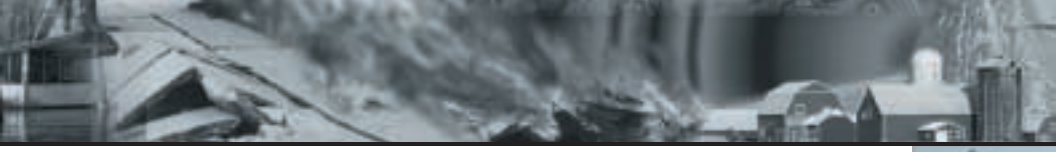
Consult with one or all of the following: Commodity Organizations, Government Representatives (Federal, Provincial, Municipal), Agriculture Extension Officer, Insurance Agent, Bank Manager, etc. to determine if there are any disaster-related financial assistance/loan programs and/or private donation programs available.



Module IV:
Farm Emergency Fact Sheets

Summary for Module IV

Module IV has more detailed information on topics such as conducting an individual hazard analysis, standby electrical power requirements and emergency food, feed, and water supplies. Module IV is not only, a useful farm reference document, but is also a source for farmers in developing their individual Farm Emergency Plan.



Farm Emergency Fact Sheet #1

Disaster Impact Worksheet

A hazard analysis will identify the range of possible risks that have or might impact your farm operation and/or the surrounding area. You should be able to identify "what" can occur, "when" and how often it is likely to occur, and "how serious" the effects might be.

You will be concerned with those types of disasters that occur more frequently in your area. This will be determined through your personal experience, history of disasters in your region and conversations with friends, neighbors, co-workers and government officials.

Emergency Preparedness Canada has identified several emergencies which could occur in Canada including natural disasters, environmental incidents and industrial accidents.

- Blizzards
- Snow
- Hail
- Frost & Freeze-ups
- Ice Storms
- Cold Waves
- Torrential Rain
- Severe Thunderstorms
- Magnetic Storms
- Tidal Waves
- Sea & Lake Surges
- Fog Forest Fires
- Drought
- Spring Floods
- Flash Floods
- Dam Burst
- Hurricanes
- Tornadoes
- High Winds
- Heat wave
- Avalanche
- Earthquake
- Land Slides
- Environmental Incidents
- Plant & Animal Diseases arising from natural disasters
- Technological Disasters.

As can be seen from the listing, weather-related emergencies are the most common natural disasters facing Canadians and the impacts of these events on the farm and rural sectors of Canadian society are, in all likelihood, more pronounced than on urban Canadians.

Definition

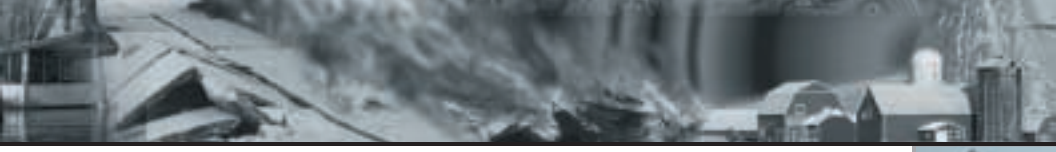
An emergency is an abnormal situation requiring prompt action beyond normal procedures in order to prevent injury or damage to people, plants, livestock, property or the environment.

The objective of emergency management is the prevention of an emergency situation or, in the event of an occurrence, the minimization of damage, loss or suffering. The methods for responding will vary with the type of emergency, it's location and magnitude, and the capabilities of the response organization.

The primary impact of an emergency is that it could result in either the disruption of essential systems or the destruction of resources. The extent of this disruption/destruction will determine the magnitude of the impact on agriculture and therefore the most appropriate level and type of response.

Disaster Impact Worksheets

A framework has been designed to facilitate the analysis and provide for consistency of data collection. To properly assess the impacts of a wide range of natural disasters, a Disaster Impact Work Sheet has been developed to provide both a qualitative and quantitative assessment of the damages. This will



form the basis for the development of practical response plans for use by farmers and farm organizations.

Impacts can initially be rated as high, medium, low, nil. More detailed disaster impact analysis will require both a descriptive and, where possible, a quantitative assessment of the damage/impact. Obviously, to qualify for insurance claims and/or government financial assistance will require detailed estimates and actual determinations. That is clearly one important benefit of a comprehensive Disaster Impact.

The Listings of Essential Elements and their components are provided for your information and to assist you in developing your own lists based on your individual home and farm operations and your individual circumstances.

These are summarized in the attached Work Sheets which allow you to select a potential hazard, assess the impact in simple terms (high, medium, low, nil), describe it concisely and, if possible establish an estimate of the dollar cost of the damages. You do not need to be precise in this exercise. It is intended to lead you through a process of analyzing the impact of disasters, and thereby establishing the significance and importance of preparing your individual farm emergency plan.

This exercise will help you understand the overall impact and cost of various disasters that may impact on your farm operation. It will help you in establishing priorities and where to emphasize your personal requirements in developing your individual Farm Emergency Plan. It will also assist you in reviewing your farm insurance needs.

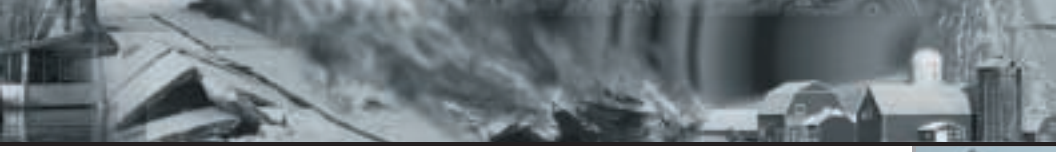
Disaster Impact Work sheet

Natural Disaster:

Commodities:

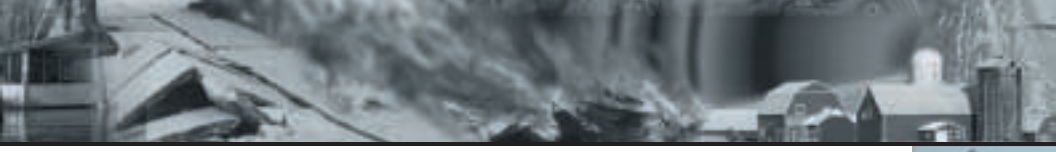
Location: Date:

Essential Elements	Impact			
	high	medium	low	nil
1.0 Farm Assets				
1.1 Land & Buildings				
1.2 Field Machinery & Equipment				
1.3 Barn Equipment				



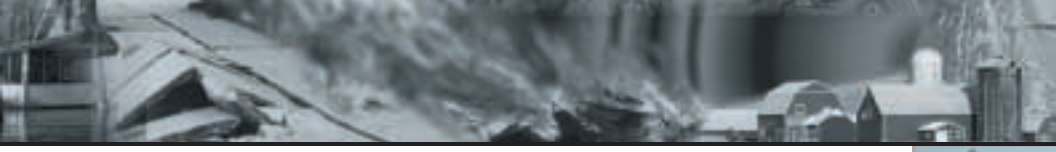
Description	$ Damages

Essential Elements	Impact			
	high	medium	low	nil
1.4 Livestock				
1.5 Crops				
1.6 Purchased Feeds				
1.7 Hazardous Materials				
Pesticides				
Herbicides				
Rodenticides				
Insecticides				
Fertilizers				
Other Chemicals				
Petroleum				
Propane				
Other Fuels				

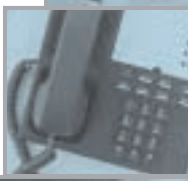


Description	$ Damages

Essential Elements	Impact			
	high	medium	low	nil
2.0 Water Supplies				
Manual Water Delivery Systems				
Automated Water Delivery Systems				
Plumbing				
Pumps & Motors				
Barn Cleaning Systems				
Surface Water Supplies				
Ground Water Supplies				
Potable Water Supplies				
Waste Water Disposal				
Storm Water Drainage				
Other				
3.0 Electrical Power & Other Energy Sources				
Power Lines, Transformers				
Electrical Panels & Wiring				
Batteries				
Connections, Switches				
Generators				
Generator Hook-ups				
Electric Motors				
Electric Pumps				
Fuel Supplies				
Natural Gas Supplies				
Wood Supplies				
Solar Power				
Wind Power				
Other				



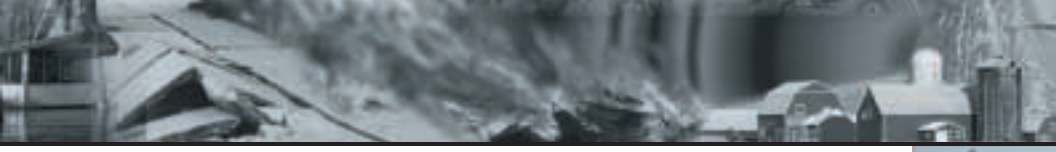
Description	$ Damages

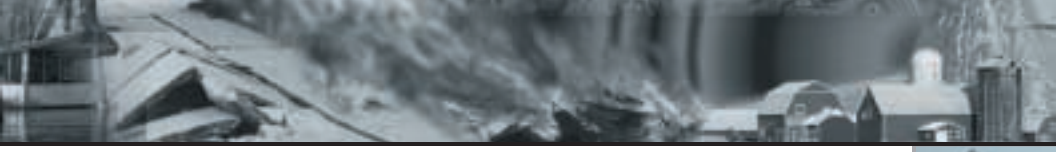





Essential Elements	Impact			
	high	medium	low	nil
4.0 Communications				
Telephones				
Telephone lines				
Cellular telephones				
Computers				
Fax machines				
UHF radios				
Ham radios				
Television sets				
Antennae				
Satellite Dish				
Other				



Description	$ Damages



Farm Emergency Fact Sheet #2

Farm Assets Inventory

Introduction

The following listing of assets is not intended to be all encompassing. It is provided for your use as a checklist to assist in preparing a detailed listing and site plan for preparation of your individual Farm Emergency Plan. This information may also be available from your financial advisor/accountant or as part of your insurance records.

Land and Buildings

☐ land owned (acres).....

.....

.....

.....

☐ land leased (acres) .....

.....

.....

.....

☐ farmhouse(s) .....

.....

.....

☐ barn(s) .....

.....

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☐ garage(s)

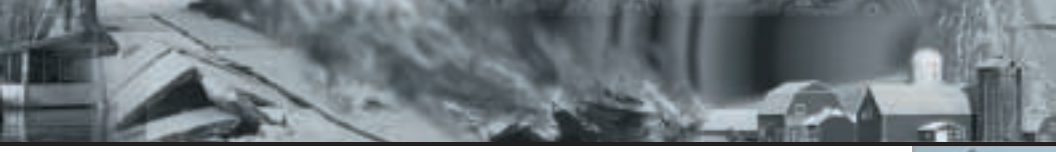
☐ sheds

☐ silos, elevators

☐ greenhouses

☐ fences (all types)

☐ other

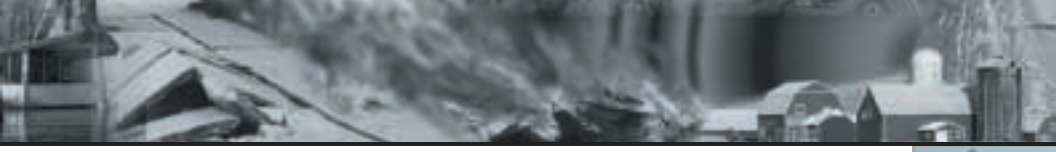


Field Machinery and Equipment

Barn Equipment

Livestock (eg. Dairy, Beef, etc.)

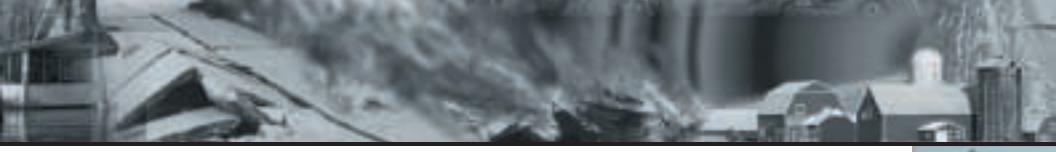
Crops (eg. Wheat, Barley, Potatoes, Apples etc.)



Purchased Feeds & Supplements

Chemicals (eg. Pesticides, Herbicides, Fertilizers etc.)

Hazardous Materials



Farm Emergency Fact Sheet #3

Some General Considerations for Farm and Family Emergency Planning

The key to surviving any emergency is to be prepared for it and to be informed. You can lessen an emergency's impact by knowing what to do before, during and after one occurs.

Before

Be informed and be prepared

- ☐ Teach family and farm workers what to do in an emergency.
- ☐ Learn to recognize the warnings, identify the hazard and learn what to expect.
- ☐ Conduct a hazard hunt.

Develop an emergency plan for your family and your farm and involve all family members and farm workers. Include:

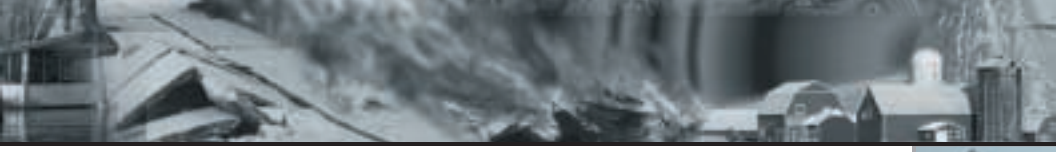
- ☐ Emergency telephone numbers.
- ☐ Stockpile feed, fuel, etc. for minimum 72 hours.
- ☐ Secure chemicals and pesticides.
- ☐ Evacuation routes and maps for family, farm workers, livestock, etc.
- ☐ Relocation sites for livestock and machinery.
- ☐ Emergency family meeting place (how and where to reunite).
- ☐ Practice your plan.

Prepare a Disaster Kit

- ☐ Tools, equipment and supplies
- ☐ Extra halters and ropes
- ☐ Medication for family and livestock
- ☐ Flares and fire extinguishers
- ☐ Battery operated radio or crank radio and flashlights
- ☐ First-aid kits
- ☐ Maps
- ☐ Emergency food and water
- ☐ Shelter-plastic tarps, blankets, tents
- ☐ Back up generator(s)
- ☐ Reinforce foundations, floors, walls and roof and secure contents of your farm buildings

During

- Stay calm-don't panic.
- Protect yourself-take cover or shelter.
- Respond at once-implement your plan.
- Take control of the situation.
- Secure assistance if available.
- Help others.
- Follow instructions-listen to your radio or television.
- Be prepared to wait out disaster.



After

- Check the scene for safety.
- Use extreme caution when entering buildings that may have been damaged by the disaster.
- Account for family and staff.
- Take stock of damages and further threats (fire, gas, flooding, building collapse, etc.).
- Do not use electrical switches, telephones, appliances, etc., until you are sure that there is no gas leaking. Note: Use telephones only as necessary to avoid tying up communication lines.
- Report damages and needs to proper authorities.
- Check livestock, equipment, machinery.
- Clean up spills and leaks if qualified.
- Secure feed supplies and water for livestock.
- Secure anything loose that might fall or be torn down.
- Don't drive or travel unless necessary.
- Do not pass on rumors or exaggerated reports.

Types of Emergencies Which May Affect You

Flood

- Keep materials such as sandbags, plywood, plastic sheeting and lumber handy for emergency waterproofing.
- Secure gas, propane tanks, and other equipment.
- Move machinery and equipment to high ground.

Fire

- Install a number of smoke detectors and fire extinguishers in your home and buildings.
- Don't let "junk" accumulate. Clean out attics, basements, and storage rooms frequently.

- Extension cords should not be overloaded. Check often for fraying. An extension cord used to connect an appliance should always be the proper size and capacity for the appliance.
- Check the heating sources to your home and buildings. Be sure that they are clean and in good working order.

Earthquake

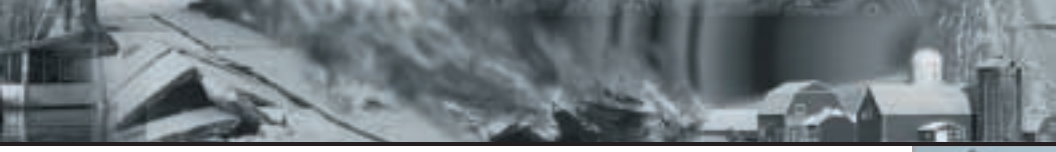
- Bolt down water heaters and gas appliances since fire could result from broken gas lines and appliance connections.
- Secure and brace any objects that may fall and cause injury.
- Plaster cracks in ceilings and foundations should be repaired.

Chemical Spill

- Store flammable liquids in approved containers, outside the home or other buildings.
- Store chemicals, including fertilizers, pesticides and detergents in an area where they will not spill or leak and possibly contaminate water supplies.

Relocation of Livestock

- Clearly define and mark evacuation routes and potential holding sites.
- Develop a list of contact people.
- Arrange alternate accommodation (on high ground in the event of a threatening flood).
- If applicable, locate an emergency milking station.
- Have all animals properly identified-ear tags and tattoos are considered to be a minimum. As well as the ear tag or tattoo, some visible identification should be used: e.g. neck chains with owner's initials.
- Have a livestock identification list prepared.
- Arrange for an alternate supply of feed to be ready at this site-enough to last for a minimum of a week.
- Take with you a supply of rope halters, livestock marking pencils, portable electric fencer, feeding buckets, forks and shovels, medication, disinfectant, small tools etc.



Farm Emergency Fact Sheet #4

Health, Safety, Food & Water

In the event of a major disaster-flood, fire, tornado, earthquake, hurricane, winter storm, ice storm, toxic leak-basic supplies and services may not be available, or you may have to evacuate your residence or community. You may not have much time to act. Prepare now to protect yourself and your family for a sudden emergency.

A. Family Emergency Plan

If a major disaster strikes your community, you may be separated from members of your family who are at home, at work, or at school. If your family should become separated in a disaster, here are some suggested measures that you can take to help reunite them:

- Identify ahead of time two family meeting places: one outside your home in case of fire and one outside your neighborhood in case of disaster.
- Decide ahead of time on a system of communication. Pick one out of province and one local friend or relative for family member to call if separated because of a disaster. It is often easier to call out of province than within the affected area.
- All members of your family should have a means of identification on them at all times: e.g. clothing label, wallet card, bracelet with name and address.
- Take basic First Aid and CPR training.
- Involve all family members in planning for an emergency.
- Test your plan. Chances of survival are improved if you exercise your plan.

B. Prepare an Emergency Pack

An emergency pack consists of such essential items as water, food, clothing and first aid supplies for at least 3 to 5 days that are set aside in easy-to-carry containers. Your emergency pack should include the following items:

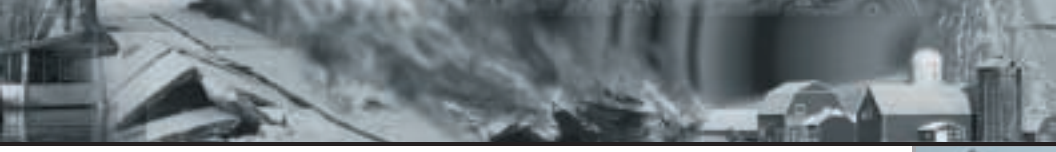
Water

Water is essential for survival. Plan on a minimum of one litre per person per day for drinking purposes only. Store water in unbreakable containers such as plastic bottles. Record storage date and replace every six months.

In a disaster, you might be cut off from food, water and electricity for days. By preparing emergency provisions, you can turn what could be a life-threatening situation into a manageable problem.

If a disaster catches you without a stored supply of clean water, you can use water in your hot-water tank, in your plumbing and in ice-cubes. As a last resort, you can use water in the reservoir tank of your toilet, but purify it first.

Stocking water reserves and learning how to purify contaminated water should be among your top priorities in preparing for an emergency. Everyone's needs will differ, depending upon age, physical condition, activity, diet and climate. A normally active person needs to drink at least two quarts of water each day. Hot environments can double that amount. Children, nursing mothers and ill people will need more. You will need additional water for food preparation and hygiene. Store a total of at least one gallon per person, per day.



You can store your water in thoroughly washed plastic, glass, fiberglass or enamel-lined metal containers.

Before storing your water, treat it with a preservative, such as chlorine bleach, to prevent the growth of micro-organisms. Use liquid bleach that contains 5.25 per cent sodium hypochlorite and no soap. Some containers warn, "Not For Personal Use." You can disregard these warnings if the label states sodium hypochlorite is the only active ingredient and if you use only the small quantities in these instructions.

Add four drops of bleach per quart of water (or two scant teaspoons per 10 gallons), and stir. Seal your water containers tightly, label them and store them in a cool, dark place.

Boil water at a rolling boil for 10 minutes to kill any disease-causing bacteria in the water. Add a pinch of salt to each quart of boiled water to improve the taste.

Food

Choose foods that require no refrigeration, cooking or preparation, are compact and lightweight, and familiar to users. If food must be cooked, include stove and fuel.

- Ready-to-eat canned meals: stews, baked beans, spaghetti, meat, fish, poultry, fruits, vegetables, cereals, trail mix, oatmeal cookies, candies or jellies.
- Canned milk, juices, coffee, tea.
- Staples such as sugar, salt, pepper.
- Baby formula, food and diapers.
- Cutlery, non-electric can opener.

Clothing and Bedding

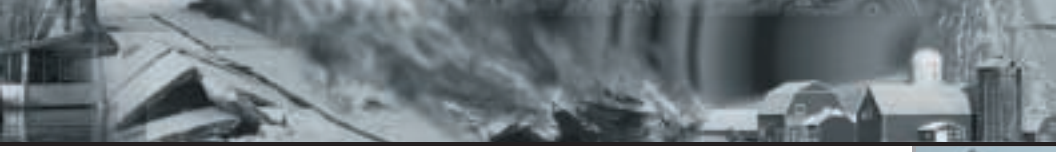
The secret of protection from extreme cold lies in wearing multiple layer of clothing which prevent the loss of body heat. Most of the body's heat is lost through the head and neck. During the summer, provide protection against sun and heat.

- Include one change of clothing and footwear per person.
- Sweaters, woolen socks, toque or hat, scarf, mittens, and thermal underwear.
- Rain gear.
- Sturdy, waterproof shoes or boots.
- Sleeping bag or two warm blankets per person.

First Aid Kit

Keep a complete first aid kit in your home and car

- Sterile adhesive bandages in assorted sizes
- 2-inch sterile gauze pads
- 4-inch sterile gauze pads
- Hypoallergenic adhesive tape
- Triangular bandages
- 2-inch sterile roller bandages
- 3-inch sterile roller bandages
- Scissors
- Tweezers
- Needle
- Moistened towelettes
- Antiseptic
- Thermometer
- Tongue depressors



- Tube of petroleum jelly or other lubricant
- Assorted sizes of safety pins
- Cleansing agent or soap
- Latex gloves
- Sunscreen
- Non-prescription drugs
- Eye dropper
- Aspirin or non-aspirin pain reliever
- Anti-diarrhea medication
- Antacid (for stomach upset)
- Syrup of Ipecac (use to induce vomiting if advised by the poison control center).
- Include over-the-counter medications such as aspirin or non-aspirin pain reliever, antiseptic, etc.
- List of family physicians, style and serial number of medical devices such as pacemakers.
- Be sure to take prescribed medications such as heart and high blood pressure medications, insulin, etc., with you when you evacuate.
- Denture needs, contact lens, hearing aids, mobility aids.
- Basic first-aid manual.

Supplies and Tools

- Battery operated transistor radio or crank radio, extra batteries
- Plastic sheeting/StapleGun
- Candles and candle holders
- Pliers
- Flashlight (one per person), extra batteries
- Pocket knife
- Hammer, nails, crowbar

- Rope
- Lantern and fuel
- Shovel (small)
- Matches (in waterproof container)
- Tape
- Mosquito repellent
- Whistle

Sanitation

- Toilet paper, wet ones, facial tissues, liquid detergent.
- Personal items: soap, shampoo, deodorant, toothpaste, toothbrushes, sanitary napkins and tampons, towels and face cloth, comb and brush, lip balm.
- Plastic garbage bags and ties.

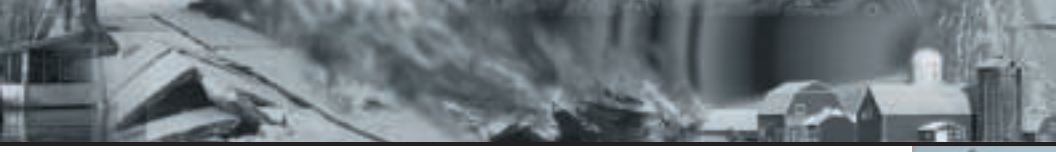
Special Items

- Cards, games and books
- Colouring books

Family Records and Documents

Store important family documents and records in waterproof container

- Will, insurance policies, contracts, deeds, stocks and bonds.
- Passports, social insurance cards, health cards, immunizations records.
- Money or cash.
- Savings or checking account numbers.
- Credit card account numbers and companies.
- Important telephone numbers.
- Family records (birth, marriage, death certificates).



C. Prepare an Emergency Car Kit

- Battery powered or crank radio and extra batteries
- Blanket
- Booster cables
- First aid kit and manual
- Fire extinguisher
- Flares or reflectors
- Flashlight and extra batteries
- Food: non-perishable high energy foods such as granola bars, raisins, etc.
- Maps
- Shovel
- Tire repair kit and pump
- Water

D. People with Special Needs

Register in Advance. In case of evacuation, some people may require transportation assistance to reception centres or group lodging facilities. People who require this help may have a physical, neurological or psychological disability or have mobility problems. Persons who are unable to respond independently to an emergency situation which requires them to evacuate their home should register in advance for assistance with a home care program, local seniors organization or emergency measures organization.

Some Health Care Patients. Persons who receive home health care should discuss emergency plans with their caregiver or home care agency. They should also check with their

physician if prior arrangements would be necessary for evacuation to a hospital.

Electrical Life Support. If a member of the household is bedridden and requires constant medical care or has electrical life support equipment at home, discuss this with their physician or local emergency measures organization.

E. How Can You Best Help Your Pets?

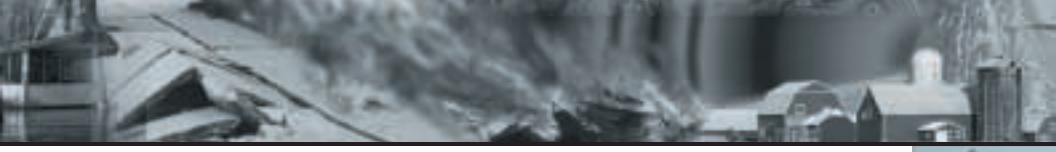
Be prepared at all times-you never know when a disaster will strike. There are three things you can do to help your domestic pets now, just in case.

- Have a permanent disc on your pet's collar with your name, phone number and, if possible, address.
- Always have a carry-box with a blanket or towel ready. Identify the box with your name, address and phone number. The box is always useful for emergency trips to the vet!
- Keep an emergency supply of tinned food.

F. Handling Disaster-Related Stress

Disasters may strike quickly and without warning. These events can be frightening for adults, but they are traumatic for children if they don't know what to do.

During a disaster, your family may have to leave your home and daily routine. Children may become anxious, confused or frightened. As an adult, you'll need to cope with the disaster in a way that will help children avoid developing a permanent sense of loss. It is important to give children guidance that will help them reduce their fears.



When something big happens, how will you cope?

Right after it happens, you may feel:

- Afraid
- Shocked
- Numb

It may be hard to decide what to do next. You may want to:

- Find out as much as you can about what happened.
- Help yourself and your family.
- Help others who are going through the same thing.

A few weeks after it is over, you may feel:

- Really mad
- In a bad mood
- Afraid of the future
- Guilty because there was nothing you could do

You may also feel that:

- You don't trust anyone
- It was all "too much for me" (overwhelmed)
- You are not getting enough help
- The help you are getting is not good enough
- You want to be alone

The way you feel may affect your body. You may have:

- No desire to eat or you may eat too much
- Upset stomach
- Headaches
- A hard time sleeping
- Crying spells

Here's What You Can Do

1. For yourself

- Try to eat meals at normal times
- Get enough sleep
- Do some kind of exercise
- Take a step back and look at what happened
- Try to solve problems with other people, not alone
- Take some time to be alone
- Take some time to be with loved ones or friends
- Try to enjoy the small things of life
- Take it easy. Do not ask too much of yourself

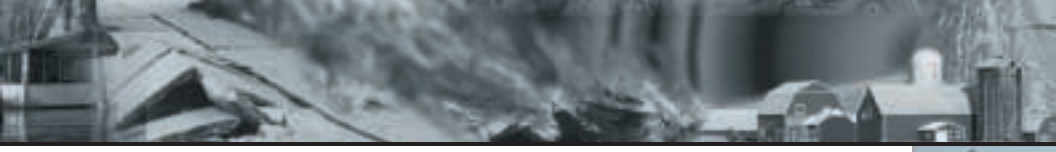
2. For your spouse

- Take some time to be alone together.
- Take some time to talk about what happened.
- Keep an open mind. The way you think about what happened may not be the way your spouse sees it.
- Be more willing to listen.
- Take turns hearing what the other has to say.
- Hug each other.
- Don't take your anger out on the one you love.

3. For your children

Kids have their own way of dealing with things. If you have young children you may find that they:

- Go back to baby things, like sucking their thumb or wetting the bed.
- Want to be close to you all of the time.
- Don't want to go to bed.



- Have bad dreams.
- Cry and scream.
- Pretend that the "bad thing" never happened.
- Become very quiet.
- Don't want to play active games.
- Don't want to go to school.
- Start to have problems at school.

Here are some things you can do to help your children.

- Talk about what happened.
- Tell them about it in a way they will understand.
- Say how YOU feel about what happened.
- Let them know they are safe. Tell them this OFTEN.
- Hug them or hold them. This makes them feel safe.
- Tell them about safety rules so they know what to do if it happens again.
- Spend more time with them. Try to be there at bedtime.
- Praise them when they do things right.
- Make sure you tell teachers, baby-sitters or others how your child is coping with this.

4. For older parents, friends or relatives

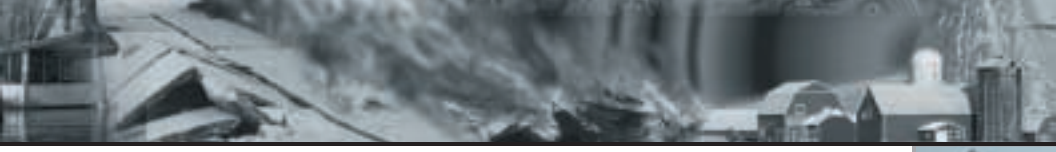
- Let them talk about how they feel.
- Try to find out what they are afraid of and what they need.
- Respect what they say about the choices they make.
- Let them know that they will be able to cope. Remind them that they coped with many other bad or sad things in their life.
- Offer to help them out by driving them places or cleaning the house.
- If you can't help them, tell them about people or groups who can.
- Plan to do something with them that they enjoy, like playing cards.
- Don't pressure them to make any big changes, like selling their house.

5. For your community

- Listen to people who are having problems.
- Say how you feel about what happened.
- Keep in mind that tempers may be short. Some people may be having a very hard time.
- Tell people where they can go for help, if you know where to go.
- Give credit to all those who are helping out.

You will know life is getting back to normal when...

- You feel better.
- You are doing your normal work each day.
- You feel you can enjoy the simple things in life.



Farm Emergency Fact Sheet #5

Health, Safety & Feed - Plants and Animals Disaster Planning for Livestock

Introduction

Disaster planning is critical to the survival of your livestock and the following information should facilitate the development of emergency plans.

In a disaster situation, you may be faced with the need to:

- evacuate your livestock, or
- maintain them under shelter at your facility, or
- turn them loose to find their own way

Depending on the situation, the decision may be yours or it may be mandated by the situation or emergency management personnel.

The health and safety of our animals may be dependent on how well-prepared you are for these options in the event of an emergency.

Shelter-in-place

If the animals are to be maintained under shelter in your facility:

- The facility must be capable of withstanding the situation. (Hurricane, high winds, heavy snow, earthquakes, etc.) If not, make necessary repairs to the facility or evacuate. Be sure that the window and doors are fully functional for good closure of the building.

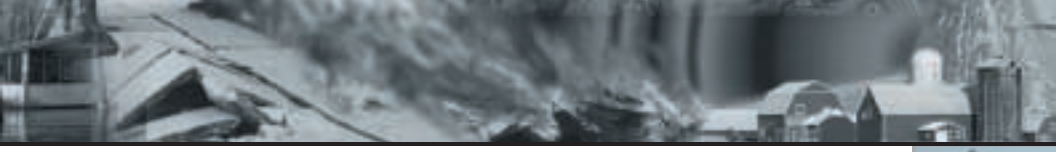
- You may be gone for an extended period-adequate water and hay must be available and accessible to animals at all times. In recent disasters, one fact stood out, the lack of water presented the number one hazard to horses and livestock. These animals, many that require 15 to 30 gallons of water per day, dehydrate very easily. Water can be stored in 55 gallon drums, keep enough on hand to a minimum of seven days. Keep it fresh by changing every three to six months. If you are lucky enough to have a fresh water stream on your property you should be prepared to dam it up quickly to pool water for storage in an emergency.
- Extra water may have to be stored in the event there is no water supply available due to contamination or lack of electricity upon your return.
- All animals will need halters, collars, etc. with identification attached.
- Hay and feed left behind will have to be stored in such a manner that it will remain clean and dry.
- Remember that animals will need to be checked daily.

Evacuation

If you are evacuating, preparations must be made as far in advance as possible to avoid stress to you and the animals.

These preparations include:

- Know where you are going to be relocating your animals.
- If the decision is made to evacuate, you should call ahead to confirm availability of space and personnel to care for animals.
- You will need to listen to the Emergency Broadcasting System for possible road closings and alternate evacuation routes.



Complete the following checklist:

- ☐ Vehicle Full of Gas/Oil
- ☐ Emergency Kit Packed
- ☐ Adequate Hay/Grain/Water
- ☐ Trailer Safe/Workable
- ☐ First Aid Kit Packed
- ☐ You must always ensure that you have a copy of Coggins, shot records and veterinarians phone numbers with you.
- ☐ If you will be staying with your animals, be sure your needs are taken care of i.e. food, clothing, drinks, blankets, bedding, toilet items, etc.

Relocation Sites

- Check your animals into the relocation site according to established rules for maximum comfort and safety.
- Give adequate hay/grain/water and stay with them until calm or as long as practical.
- If you must leave the relocation site make sure the animals are safe and secure. Leave adequate hay/feed and water depending on the length of stay anticipated.
- Check on your animals often or make arrangements for someone else to check on them.

Returning Home

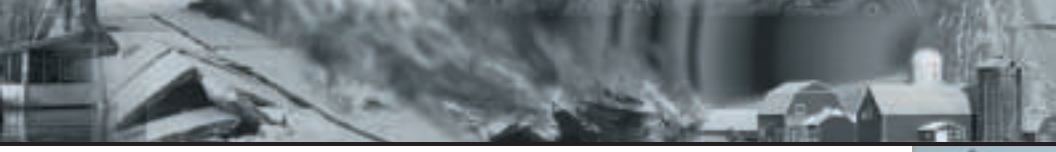
- Before returning home with your animals you should use the following checklist to inspect your facility.
- Barn is structurally sound and debris free.
- Water supply is clean and not contaminated.
- Feed/hay supply is clean and dry.
- Fencing is in place and secure.
- Electricity is available and safe.

When you are satisfied that the area is safe and secure, it is important that you return your animals to familiar surroundings.

First Aid Kit for Livestock

Depending on livestock types, your first aid kit should contain some or all of the following items:

- Gauze pads (3-in. minimum)
- Non-stick pads (for protecting wrap)
- 2-4 Ace bandages (4-in. wide)
- Roll of 2-in. adhesive tape
- 1lb. Roll of cotton
- Disposable diapers/sheet cotton
- Roll black electrical tape
- Cotton swabs (various sizes)
- Rubbing alcohol
- Saline solution
- Mild liniment
- Vaseline
- *Military compress bandage dressing
- Mild surgical soap
- Nitrofurazone (salve, powder, spray)
- Epsom salts
- Fly spray (seasonal)
- Hydrogen peroxide
- Iodine
- Desitin ointment
- *Povidone iodine wound dressing
- *Povidone iodine solution



- Scissors
- Sharp knife
- Thermometer
- Tweezers/hemostats
- Twitch/hoof nippers/clippers
- Sponges/bucket
- *Oral and injectable antibiotics
- *Baramine injectable/paste
- *Tranquilizer for horses
- *Bute oral/injectable

* See your veterinarian for these items and a written authorization certificate.

Emergency Kit Vehicle/Trailer

- Extra halter per animal-preferably leather
- Extra long lead line per animal
- Flashlight with extra batteries
- Spare double ended snaps
- Leatherman/Swiss army knife (folding tool)
- Nylon stockings/cotton filled (ear plugs)
- 200 feet 5/8 in. cotton rope
- Blankets
- Leather work gloves
- Veterinarian phone numbers
- Medication if necessary
- Portable radio with extra batteries
- Coggins and shot record
- Tranquilizer
- Bucket

Maintaining Livestock Health

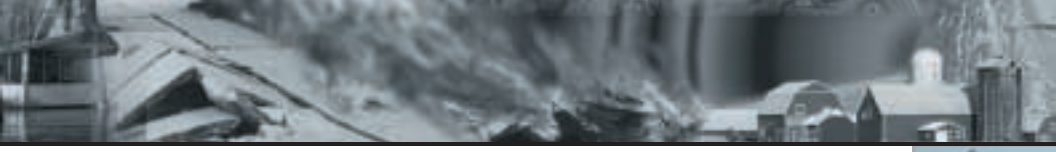
Disease Control

Following a flood or other disaster, there may be danger of infectious diseases in livestock. Observe these precautions:

- Where large numbers of animals assemble, watch for any sign of infectious diseases such as pneumonia or foot rot.
- These diseases are more likely to occur where cattle are crowded on wet ground and where houseflies are abundant.
- If possible, an experienced stockman under the supervision of a veterinarian should handle and feed the animals.
- Promptly report any sign of disease to the nearest veterinarian.

Feed and Water

- Provide clean, potable water. Adequate water must be provided. It makes up 80% of the blood.
- Contact a veterinarian about vaccinating animals for immunity from diseases.
- Regulates body temperature, and is vital for organ functions such as digestion, waste removal and the absorption of nutrients. The quantity of dry matter in the diet influences the quality of drinking water. The absorption of more vegetation water decreases the quantity of drinking water needed even when consumed dry matter is higher. A constant supply of water is one of the most essential needs in a livestock feeding program.
- Inspect feeds such as corn, wheat and hay.
- Damaged grains and moldy hay may cause digestive disturbances.
- Horses, sheep, poultry, swine and cattle are affected most severely by damaged feed.
- Do not force livestock to eat silage that has been flooded, even though its appearance may be unchanged.
- Do not feed any feed or forage that may have been contaminated by chemicals or pesticides.



- In areas where legume hays such as alfalfa are routinely fed, this type of hay alone is likely to provide sufficient amounts of nutrition under emergency conditions. In other situations, 25 percent of the energy should be supplied from oats or sweet feed and 75 percent from hay. All horses should also be regularly fed bran as a laxative.

Short Term Dietary Requirements for Farm Animals During Disasters

For specific amount and type of feeds, consult your veterinarian

Note: These are average quantities and may vary depending on the time of year and location.

Animals	Amount of water/day	Amount of feed/day
Dairy		
In Production	6.5 gal	20 lb. hay
Dry Cow	6.5 gal	20 lb. hay
Heifers	4.0 gal	10 lb. hay
Cow with Calf	7.0 gal	16 lb. legume hay
Calf (400 lb.)	4.0 gal	10 lb. legume hay
Beef		
Dry Cow	6.0 gal	12 lb. hay
Cow with Calf	6.5 gal	14 lb. hay
Calf	4.0 gal	10 lb. hay
Swine		
Brood sow with litter	3.2 gal	8 lb grain
Brood sow (pregnant)	2.4 gal	2 lb grain
Gilt or boar	0.8 gal	3 lb grain

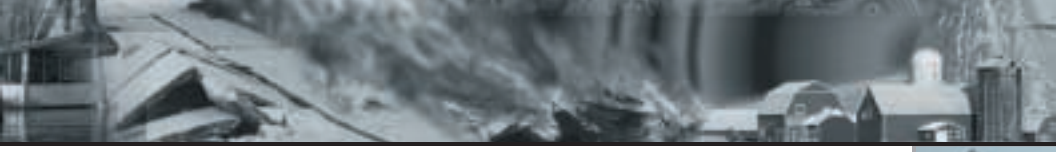
Sheep		
Ewe with lamb	2.4 gal	5 lb hay
Ewe (dry)	1.6 gal	3 lb hay
Weanling lamb	0.8 gal	3 lb hay
Poultry		
Layers	5 gal/100 birds	17 lb per 100 birds
Broilers	5 gal/100 birds	10 lb per 100 birds
Turkeys	10 gal/100 birds	40 lb per 100 birds
Horses		
All breeds	8.0 gal/1000 lb	20 lb hay/1000 lb

Pastureland

- Standing water may have ruined some pastures.
- Lack of adequate forage could force animals to eat poisonous plants which are abundant in some parts of the country.
- Remove fallen wild cherry limbs from pastures to prevent livestock poisoning.
- Before restocking flooded pastures, remove debris, especially along fence lines and in corners. Livestock could be injured from pieces of barbed wire, sharp metal and trash.

Protecting Dairy Cows

- Try to milk at regular times. It is better to lose the milk from one milking than to stress high- producing cows.
- If you must use a neighbor's milking parlor, try to keep the two herds separate.
- If feed supplies are limited, give the largest portion of available feed to the highest-producing cows and those recently fresh. This may be a good time to cull the herd.
- Clean and sanitize milking parlor, dairy barn and equipment before returning to normal use.
- Watch for signs of mastitis, which is likely to flare up if milking methods, time and equipment have been changed.



Sanitation

- Clean out hog houses, barns and chicken houses.
- Spray buildings with a good disinfectant before animals occupy them again.
- Air buildings thoroughly before they are dried out.
- Remove debris from dairy barns.
- Scrub and disinfect walls, ceilings, floors, stanchions and other equipment.
- Scrub the milk house and equipment with detergent and hot water.
- Sanitize equipment, walls, ceilings and floors with dairy sanitizer equipment.

Insects

Mosquitoes and other pests may be abundant after a flood. They not only annoy animals, but some species carry disease. Spray animals with an insect repellent recommended by your veterinarian.

Diet Supplements for Livestock- Protein, Vitamin A and Minerals

Protein

Most grain rations for cattle and sheep supply adequate protein to maintain a satisfactory 10% to 12% level. However, when livestock in emergency feeding situations are fed mostly low-protein materials such as ground ear corn, grain straws or grass straws, a protein supplement is needed.

About 1lb of 20% to 30% protein supplement/head/day is recommended. Use cost comparisons to get the best protein supplement for your money. (Compare cost per pound of protein supplied, rather than cost per ton of the supplement.)

Urea can replace part of the protein if its price is favorable. One pound of feed grade urea equals 2.62 pounds of crude protein. Never feed urea to poultry or swine. Urea in high levels is toxic to livestock. Do not feed urea at levels greater than 1% of a total ration (grain and hay) or 3% of a concentrate mix.

Give hungry livestock a fill of feed without urea before turning them onto feed which contains urea. Mix urea thoroughly with the feed and use it with an available energy source such as grain or molasses. Do not feed urea with roughage alone.

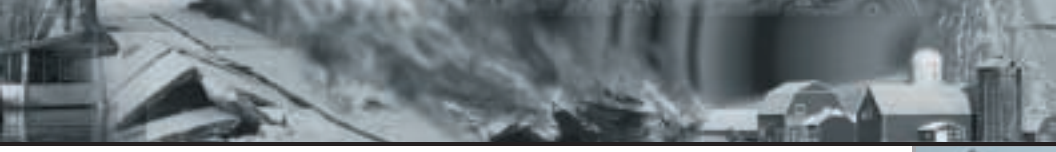
Molasses is occasionally an economical energy source, but must be fed with some dry feedstuffs. Liquid molasses can be self-fed if you use a wooden device to restrict consumption, or it can be mixed with grain at a feed mill.

Vitamin A

Hay provides most necessary Vitamin A during winter feeding. If hay is eliminated from the ration, Vitamin A supplements may be necessary. A number of stable, dry forms of Vitamin A are available commercially. These may be mixed with feed, with salt, or injected intra-rumenally.

The following daily levels of Vitamin A are suggested:

Bred cows or mature cattle	20,000 I.U.
Yearling cattle	10,000 I.U.
Bred ewes	5,000 I.U.
Milking cows	40,000 I.U.



Minerals

Removing hay from livestock rations may cause mineral deficiency. To correct this problem, supplement grain rations with a free-choice mixture of one part dicalcium phosphate and one part trace mineralized salt.

No additional salt is needed with this mixture. Although hungry cattle may crave salt, limit the feeding of loose salt to 1/10 lb per animal per day.

Cattle on limited water should do without salt or minerals for 3 or 4 weeks, or until adequate water is available.

Crop Recovery: Salvaging Wet Stored Grain or Feed

Grain

Flood-damaged grains must be salvaged quickly because grain can begin to spoil within a few hours. Wet grain molds and heats up quickly, possibly resulting in spontaneous combustion. You can remove dry grain and store it separately, but the best way to store wet grain is to get the grain to a commercial dryer quickly.

If part of a grain bin has been flooded, remove dry grain from the top, using a vaccuator or other means. If the remaining wet grain has not started to sour, run it through a grain dryer several times.

If dry storage is available, use a natural air drying system with a metal perforated floor or a lateral duct system.

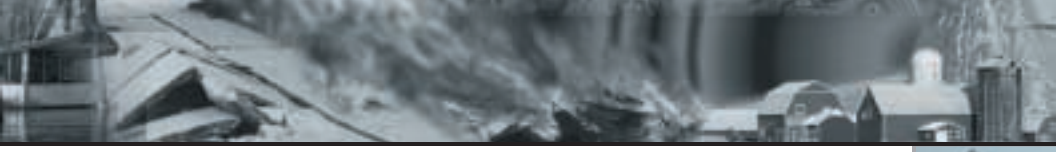
- Put the grain over this drying tunnel to a depth less than 6 feet.
- Use a crop drying fan to force air up through the grain.
- Use supplemental heat only during periods of high humidity.
- Do not raise air temperature more than 10 or 15 degrees.

If neither a commercial dryer nor a drying tunnel is available, spread the grain in as dry a place as possible, to a depth of not more than 6 inches.

If it is not possible to dry grain artificially, try to find a local market for the wet grain. This grain must be sold at a salvage price, possibly to a large livestock feeder who can use it before it spoils. Grain should be kept in airtight storage to prevent spoilage. Wet grain that has not begun to deteriorate is worth as much as other grain for feeding purposes.

Shelled corn can be put in the silo wet if the moisture is 25% to 35%. Place the grain in a bay concrete or metal silo and use it for livestock feed. You may need to increase the reinforcement of the silo, particularly if it is filled to a depth of more than 30 feet. To prevent air leakage around silo door openings, cut plastic sheets to extend 4 to 6 inches beyond the opening. Place a plastic cover over the grain in a concrete stave silo. Dig a trench around the edge of the grain and push the plastic down and out against silo walls.

Wet seed grain will probably be unsuitable for seed. Wetness causes the seed to germinate. Subsequent drying stops germination and will probably kill the seed or reduce its viability. Do not feed seed grain to livestock because it may contain toxic additives.



Corn

Dry wet corn as soon as possible. Separate dry corn and store it on high ground. If the ground is wet, first cover the area with plastic or building paper. Handle wet corn as follows: Dry the corn if facilities and equipment are available. Remove the corn from crib, since mush and debris washed into the crib may make drying difficult or impossible. Then place the corn over a drying tunnel and force air through the corn with a crop drying fan. Shell the corn if shelling equipment is available.

Hay Stored in Stacks

Wet hay will begin to heat and mold very quickly. Spontaneous combustion could occur within 2 or 3 days. Move and restack and dry portions of hay.

- Promptly take wet hay from buildings and spread it out to dry.
- Turn and shake it frequently.
- Open wet bales and spread them out well.
- Mechanical drying is better and faster than manual drying.
- Construct a drying tunnel of dry hay bales.
- Stack the hay over the tunnel to a depth of less than 6 feet.
- If you stack baled hay over the drying tunnel, break the bale ties first.
- A fan pushed into the side of a haystack also speeds drying.

Silage

Wet corn silage will probably not be greatly damaged if flood waters are drained away from around the silo soon after flooding. Watch silage for evidence of spoiling as you remove it for feeding.

Handling Flood-Damaged Hay

Overly-Mature Perennials

Some overly-mature alfalfa or clover grass can be partially salvaged by mixing and ensiling the crop. Although nutritional value will be low, this is a fast method of removing the crop to ensure a good second cutting. Ensile perennials in either conventional upright or temporary trench silos. To make a trench silo:

- Locate the trench where drainage is good.
- Design the trench for efficient feeding. A long, narrow, deep trench results in less feeding loss than a wide, shallow trench.

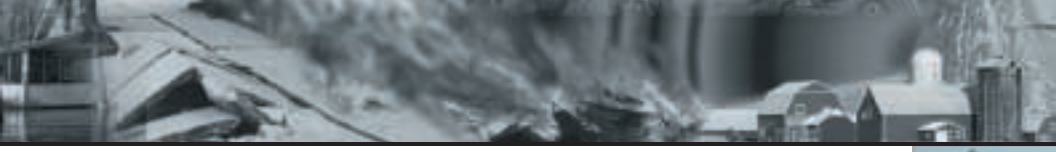
To make the silage:

- Direct cut or wilt to 65 to 70% moisture
- Chop finely
- Pack thoroughly
- If available, add 100 to 200 pounds of corn and cob chop to each ton of ensile nutrients. This will improve fermentation, quality and palatability

Hay

To minimize damage to flooded hay crops:

- Remove old growth from fields which have not been harvested. This will encourage a good aftermath crop.



- Make this crop into hay or silage.
- If crop is silt-damaged, chop it uniformly back onto the field. Then topdress immediately with fertilizer. You may also want to apply nitrogen to stimulate legumes as well as grasses. Check with an agronomist for recommended application rates.
- On fields harvested just prior tot he flood, make crop into hay or silage. Then topdress with fertilizer. Check with your Agriculture Extension Services Officer for specific recommendations.
- If growth is short or yellow, topdress immediately.

Replacing Hay with Grain

Floods or other emergencies may cause shortages of conventional roughage feeds. If substitutions in animal rations are necessary, fibrous grains such as oats, barley or ground corn may replace part, if not all, of the hay usually fed.

Continue to feed some hay or straw unless you have had experience with high grain feeding. Spread any major changes in a feeding program over a period of several days rather than switching abruptly. Observe animals carefully during the transition.

Amount of Grain

The following recommended amounts will supply maintenance and growth energy to animals under different conditions. If some hay is fed, the amount of grain can be reduced.

- Barley and oats have about equal feeding value for cattle and sheep
- Barley or ground corn can substitute for hay at the rate of 13 lbs of barley or 14 lbs of ground corn per 20 lbs of hay
- Ground corn (or corn and cob-meal) is safer than shelled corn

- Wheat and milo need added fiber, which can be supplied by dried beet pulp or about 8% to 10% of other cheap fibrous feeds such as chopped or ground straw or seed screenings. This mix will approximate the fiber level in barley or ground corn.

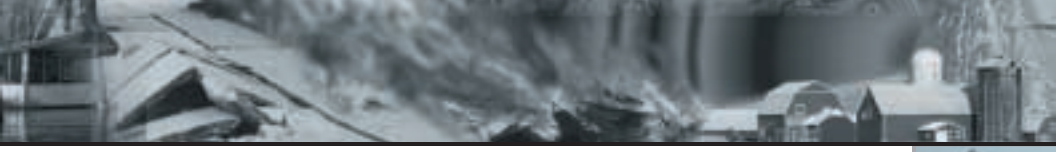
Feed Management

You will need to provide feed bunks for grain. Pelleting or cubing may help lower feed waste, particularly if the cubes contain some roughage in addition to grain. Pelleting also prevents animals from sorting the feed mix. This is especially important when lower-quality ingredients are used.

Cattle that have not been fed for several days or cattle not accustomed to grain should be fed only 2 to 4 pounds per head the first day (if only one feeding is possible), or a total of 5 pounds (if they can be fed twice daily). Increase the feed by about 2 pounds daily for large cows. Make further increases slowly. Add hay to the ration as soon as possible. Use roughage with the grain, even if it is of poor quality. Using as little as 3 or 4 pounds of straw will greatly reduce the hazards of feeding grains only.

Price Relationships

Determine the extent of grain substitution according to local availability and prices. The cheapest feed is not necessarily the best buy. On a nutritional basis, bulky hay costs more to ship than grains. If you must buy and haul hay, pay particular attention to quality. Cheap hay may not be worth the cost of shipping.



Weed Management

Floods can affect weeds both the year they occur and in subsequent years. The biggest impact in the flood year will be the reduced competitive ability of the crop. Weeds will take advantage of the stunted or killed crops and grow to maturity.

In the year after the flood, new weed problems will be likely. Some of the weeds carried into the field by floodwaters may not have germinated in time to be noticed during the previous growing season. Mechanical and chemical methods need to be considered in both the flood year and subsequent years to manage weeds. A bioassay test, in which seeds are planted in flooded and non-flooded soil samples, can be helpful to determine if soils are safe for intended crops.

If the Crop Recovers

If the crop recovers after the flood, make an effort to reduce the impact of weed competition. This may not be practical if fields are too wet to enter for mechanical or chemical weeding.

Check fields regularly to monitor crop and weed development. Take note of weed species. Are there any new species? This may happen if weed seeds were carried into the field by floodwater. Make a field map of these weed locations and use it to plan next year's weed management program.

Consider whether herbicides can be safely applied. Most labels clearly specify the maximum growth stage of the crop at which the product can be safely used. Applications following a mid-season flood are very likely beyond this "window" of application timing. Most labels also caution against using

herbicides if the crop is under any stress. Thus, the feasibility of herbicide use the same year as a flood occurs is limited.

If herbicide use is feasible but conditions are extremely wet, consider using a commercial sprayer equipped with flotational tires.

When Crops are Damaged

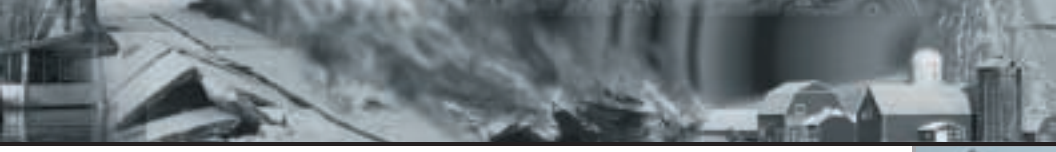
Flooding usually kills the crop or at least injures it so severely that it will not be worth harvesting. If this is the case, try to prevent weeds from going to seed through the use of mowing, tillage or chemical application.

As mentioned above, take note of any new weed species that are present. Make a field map of the weeds to plan next year's weed control program.

Mowing will allow some weeds to survive but may hasten drying of the soil more than using herbicides. Mowing is also an option if the soil is too wet to be tilled. Mechanically tilling the soil, if it is dry enough, will destroy weeds. It will also aerate the soil more than either mowing or spraying. Applying non-selective, non-residual herbicides may be a good option if the soil is too wet to work mechanically.

Repeat either moving, tillage or chemical application if another generation of weeds emerges that will have time to produce seed.

The year after the flood be alert for new weed problems. Some weeds may have germinated after you made an assessment of weeds during the flood year. Others may have remained dormant until this season. The flood may also have deposited soil that is different in texture, pH and organic matter content.



These factors may influence herbicide performance and crop safety. Take soil samples and base herbicide selection and rates on current soil characteristics.

The new soil may have herbicide residues from the previous season's application. These levels are unlikely to affect this year's crop, but it would be wise to do a simple bioassay test to determine if planned crops are feasible in the flood-deposited soil. To carry out a bioassay test:

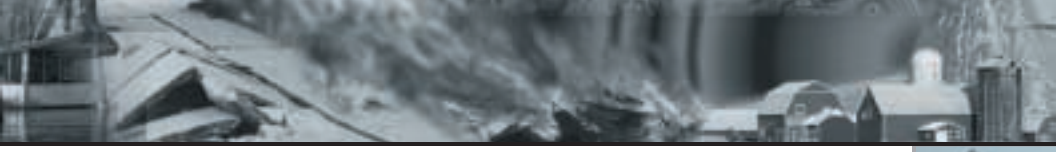
- Take several soil samples from the flooded field and plant three or four seeds of the planned crop in each one.
- Collect soil samples from a known herbicide-free site to use as a standard and plant three or four seeds of the planned crop.
- Grow the seedlings for two to four weeks.
- If plants in the flooded soil are normal and appear to grow as well as those in the herbicide- free soil, indications are strong that it is safe to plant your crop.
- If crop growth in the flooded soil is abnormal, have an agricultural professional determine if the symptoms are related to possible herbicide residues in the soil or to other causes such as nutrient deficiencies or diseases.

A Closer Look at Herbicides

Herbicides decompose in the soil by microbial action. This breakdown is slowed under flooded (anaerobic) conditions. Soil temperatures also are cooler under flooded and wet soil conditions, slowing both microbial and chemical degradation. Thus the potential for herbicide carryover that would injure the subsequent crop may increase after flooding.

Tips for Handling Flooded Soils

- Open all drainage ditches.
- Remove debris from fields and pastures. Look carefully for partially hidden objects that could injure livestock or damage machinery. Check hedge and fence rows carefully.
- To prevent severe soil compacting, avoid running trucks and heavy farm equipment over wet soils unless the vehicles are equipped with special flotation tires.
- Encourage the growth of cover crops. Any type of plant growth is effective in drying very wet soils.
- It is usually not necessary to remove silt deposits. After soils are dry enough to work, level and incorporate silt deposits into original topsoil, if practical.
- Apply animal manure and incorporate into soil. Check with your Provincial Extension Officer for recommended application rates.
- The fertility level of flooded soils will probably change over a period of time. Do not guess at requirements. Take soil samples to determine new fertility levels. Follow recommendations. Allow for nutrients supplied by applied animal manure. When sampling silted fields, make sure the samples represent the soil mix that will exist after deposited silt is mixed with the original topsoil.
- Deep tillage and subsoiling can be useful or detrimental. Check with a soil scientist or agronomist for advice concerning deep tillage and subsoiling.



Farm Emergency Fact Sheet #6

Standby Power for Emergency Farm Use

A. Standby Electric Generators

An unpredictable power outage can lead to production and economic losses. Successful operation of essential farm equipment requires the availability of electricity at all times. In the winter, electrical power is needed to run heater fans and controls; in the summer, electricity is needed to operate ventilation fans. A standby power unit can provide insurance against power outages. In brief, a standby power system consists of a generator, an engine or tractor to power the generator, a transfer switch and connectors.

Standby generators are powered by tractors or engines and may be either portable or stationary. Engine-driven units may have an automatic or manual start and are powered by gasoline, LP gas (bottled gas) or diesel fuel.

Generators must provide the same type of power at the same voltage and frequency as that supplied by power lines. This is usually 120/240 volt, single phase, 60 cycle alternating current (AC) engine capacity with the proper drive.

Size of Generators

A full-load system handles an entire farm's energy needs. An automatic, engine-powered, full-load system begins to furnish power immediately or within 30 seconds after power is off.

A smaller, less expensive part-load system may be enough to handle essential equipment during an emergency. Power take-off (PTO) generators cost about half as much as engine-driven units and can be trailer mounted. A part-load system operates only the most essential equipment at one time. For most farms this is adequate, if the generator has the power to start the largest motor. For example, the milk cooler or the ventilation fan must operate continuously, but operation of the silo unloader and mechanical feeding system can be delayed until the milking chores are over.

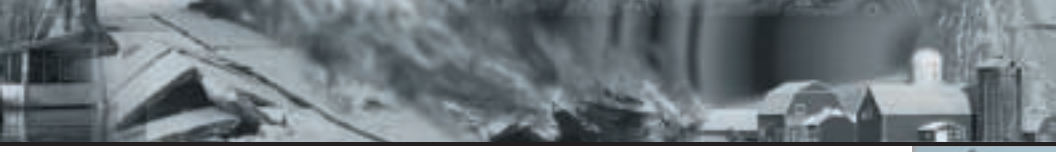
Selection of Unit

It is not always necessary to provide standby power for all electrical equipment. The generator power capacity should be about three times that of the wattage of the largest motor that is to be started as shown on the nameplate.

When selecting a generator, determine the essential equipment that must be simultaneously operated, and calculate the power needed to start and operate that equipment. If short stoppages of some equipment can be tolerated, a smaller generator can be used.

The current needed to run a motor is given on the nameplate attached to the motor. More than one motor can be operated at once, but they should not all be started simultaneously. Start the largest or most heavily-loaded motor first.

Table 1 gives the starting power requirements of single-phase electric motors. Three-phase motors have lower starting power requirements, so generators supplying power to three-



phase motors can be sized to meet the running requirements alone. Follow manufacturer's recommendations to select the appropriate generator for your combination of voltages and single- and three-phase equipment.

Table 1. Electrical power requirements of single-phase 120V and 240V electric motors.

Motor Horsepower	Split phase Starting Watts	Capacitative Starting Watts	Running Watts
1/6	860	—	215
1/4	1500	1200	300
1/3	2000	1600	400
1/2	2300	2300	575
3/4	3350	3345	835
1	4000	4000	1000
1 1/2	5000	6000	1500
2	7500	8000	2000
3	11000	12000	3000
5	15000	18000	4500
7 1/2	21000	28000	7000

Types of Units

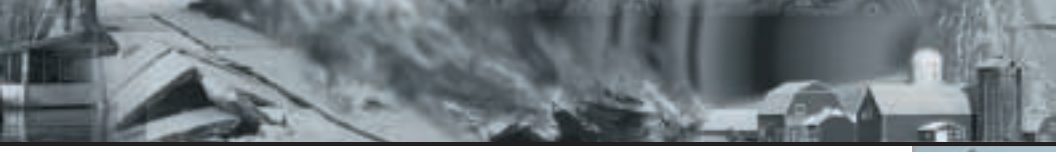
The generator may be powered by a stationary engine or by the power take-off (PTO) unit of a tractor. Automatic switching systems will require their own power unit. Manual switching systems can be PTO driven or use stationary power plants. If the generator is PTO driven, the tractor must produce two horsepower for each kilowatt of electric power produced by the generator. The use of PTO power reduces the amount of

money invested in a system, and the tractor can be used for other operations when not being used to drive the generator. Remember, it does take time to hook the tractor to the generator. However, if a tractor is not running properly, it is often easier and faster to change tractors than it is to repair or replace a disabled stationary engine.

Gasoline, liquid propane (LP) gas, and diesel engines are available to power these units. LP fuels generally burn cleaner than gasoline. This promotes longer engine life and reduces frequency of service. Gasoline tends to form a varnish in the system during storage, which may make starting difficult. Except for very large engines, diesel units cost more initially than gasoline engines of comparable capacity. However, operating and maintenance costs are lower for diesel engines.

The transfer switching mechanism can be either manual or automatic. Automatic switches restore power in a minimum amount of time when power fails, but are expensive. If personnel are readily available to start the generator, a manually-controlled system is more economical. Manual switching also makes it possible to use a smaller generator because the operation of equipment should be regulated so that only essential equipment is drawing power.

A standby power system should be completely automatic if critical operations (eg. poultry and greenhouses), cannot be without power for more than a short time. The generator must have the capacity to handle the starting current of all motors at once. This problem can be eliminated by controlling some motors with time delay relays. They can be set to turn on the motors in sequence to minimize the initial load



starting requirements. The cost of this sequencing equipment should be compared to the savings resulting from the reduction in generator size.

Motor Protection

Consider protecting all motors with thermally-operated switches that break the circuit if the motor draws too much current. The same type of fuse should be built into the generator.

Installation

Wiring and equipment must be installed in accordance with provincial electrical codes, local ordinances and the requirements of the power supplier. It is very important to have the proper equipment for disconnecting the generator from public utility lines. The installation of a double-pole double-throw transfer switch or its equivalent is required for this purpose. This type of switch protects servicemen working on the line from accidental shock and protects against damage to the generator, if the generator is connected to a live power line. Check with your electrician or power company representative for installation instructions and inspection.

When selecting a location for the generator, several factors should be considered:

- Protection from the weather.
- Location near the main service entrance from the power line to minimize wire usage.
- Whether it is to be used on all circuits or only those that supply essential equipment.

Permanently installed, engine-driven electric generators should be mounted on a concrete base. Pads that damp vibrations should be placed between the engine mount and the concrete base to minimize the transfer of vibration to other equipment. If PTO power is used, a location must be selected where the tractor can easily be lined up.

Venting Exhaust Fumes

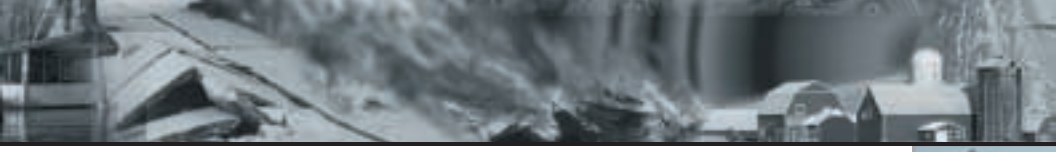
Engines running on fossil fuels give off exhaust fumes that can be poisonous. If you use a tractor inside a building, use flexible tubing to vent the exhaust gases outside. The exhaust vent from either stationary engines or tractors must be located so that fumes cannot gain entry into buildings. Make sure that sparks from the exhaust cannot ignite flammable materials.

Operation of Units

An automatic standby unit starts automatically when power fails, and stops when power is restored. When using an engine-driven generator with manual start, or when using a tractor-driven unit, follow the manufacturer's starting and operating procedures.

Typically, this procedure is as follows:

- Call your power supplier and advise them of the power outage conditions.
- Turn off or disconnect all electrical equipment.
- Position the tractor or engine for belt or PTO drive. Check on direction of exhaust pipes and be sure that there is no danger of fire.
- Start the unit and bring the generator up to proper speed. The voltmeter indicates when the generator is ready to carry the load.



- Turn the transfer switch to the generator position.
- Start the largest electrical motor first. Add other loads when each is up to operating speed. Don't add too many loads too fast. If the generator quits, then repeat steps 2, 4, and 5.
- Check voltmeter and frequency meter often. If voltage falls below 200 volts for 240-volt service, or below 100 volts for 120-volt service, disconnect some electrical equipment to reduce the generator load.
- When commercial power is restored, return the transfer switch to the normal power position. Then stop the standby unit.

Maintenance

Keep the unit clean and in good running condition at all times for immediate use. Accumulation of dust and dirt can cause the motor to overheat when operated.

Follow the maintenance instructions in manufacturer's manual. A short operation at set intervals will keep the engine in good operating condition. Regularly scheduled warm-ups are necessary to keep the standby generator in working order.

The generator and power plant should be protected from the weather. Also protect equipment from mice and from birds building nests when the generator is idle; a 1/4-inch mesh over ventilating openings is recommended. Avoid lightning damage by grounding the frame of the generator. Check the condition of all electrical insulation and test automatic switching units regularly. Do not let fuel stand in unused storage tanks for long periods of time, because undesirable deposits may form.

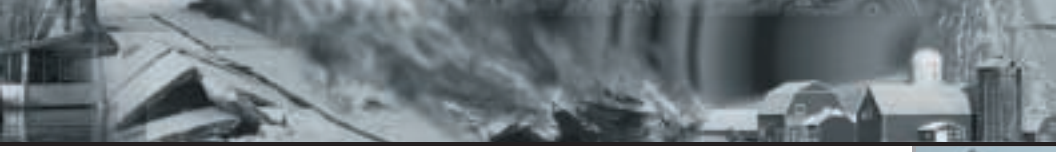
Alarms

Consider alarms or devices that notify the farm operator at home when power is interrupted. Test the operation of alarms regularly, and make sure that alarms monitor all phases of a three-phase system.

Conclusion

Selecting the proper standby power generator helps ensure against loss and damage caused by power outages. This can be done by:

- determining the critical equipment and the amount of power it takes to start the equipment.
- installing a double-pole/double-throw transfer switch sized to handle the maximum current that will flow through the circuit when connected to the system.
- installing a generator that has a thermal overload device and has a power rating large enough to handle the critical items that must be used simultaneously.
- making sure the system is large enough to provide power to equipment added in the future.
- using proper venting techniques with exhaust fumes.
- providing fail-safe alarm systems .
- obtaining the services of a professional electrician to wire your standby power unit into your power system.
- making sure that your installation meets provincial electrical code requirements.



B. What To Do During A Power Failure On the Farm

Considerations

A power failure or fuel shortage can cause problems on farms, but being prepared can minimize the seriousness of these problems.

Ventilation

- Ventilate shelter.
- Do not close building tight to conserve heat, since animals could suffocate from lack of oxygen.
- Because oxygen will eventually be used up in mechanically ventilated production facilities, clear debris from all vents. Then open vents to facilitate natural air flow.
- Poultry facilities should be equipped with knock-out panels for emergency ventilation.
- In dairy facilities, open doors or turn cows outside.

Water

- Provide all animals, especially cattle, with plenty of water.
- Your water pump may possibly be driven with a small gasoline engine and a belt. Otherwise you will need to haul water.
- If you have an outside source of water, cattle can be turned out.
- Whatever the source of water, make sure it remains clean so that animals can drink it.
- If no water is available, dairymen can feed cows their own milk as a last resort.

Heat

- Provide heat. Use camp stoves and heaters as emergency heat sources.
- Plan ahead to have this equipment ready when needed.

Food

- Provide feed. Animals need extra energy for body heat during prolonged severe weather, especially if they are unsheltered.
- Mechanical feeders will be inoperable during a power failure. Provide for emergency feeding procedures.
- Use pelleted cake or cake concentrate for emergency feed.

Equipment

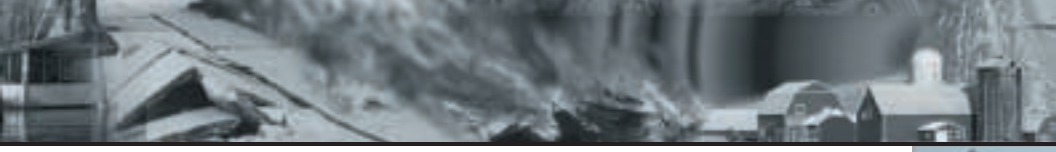
- Unplug or turn off all electric equipment to prevent damage when power is restored.

Storing Milk and Cream

- You can use the intake manifold on the tractor engine as a vacuum to operate milkers that do not have a magnetic pulsator.
- Request that the dairy pick up milk as soon as possible.
- Consider adding a standby power generator to handle vital electrical equipment on the dairy.
- Even if you are short of extra milk storage facilities, do not store milk in stock tanks or other containers such as bathtubs. Dairy plants may not accept milk that has been stored in anything other than regular milk storage containers.
- Check with your local dairy about the policy regarding emergency storage of milk and cream.
- Check your tank for souring each time you add milk to it, if you are unable to cool your milk or have it picked up. This check could mean the difference between losing all or only part of your milk supply.

Winter Power Failures

Most Canadian home-heating systems are dependent upon electric power to operate furnace, forced-air circulation and thermostat controls. Power supply interruptions can last from a few hours to several days and are often caused by freezing



rain or sleet storms which damage power lines and equipment. An extended power failure during winter months and subsequent loss of heating can result in cold, damp homes, severe living conditions and damage to walls, floors and plumbing.

The consequences of power and heating failure in sub-zero weather can be reduced in two ways: homeowners can protect their home against frost damage before leaving it for a warmer location, or they can take precautions by having an emergency standby heating system which will permit continued occupancy throughout the emergency.

Advance Precautions

- If you have a fireplace, keep a good supply of fuel on hand.
- Install a standby stove or heater which does not require electricity, and if necessary, make sure it is vented. One way of doing this is by connecting it to an unused flue. Use only fuel-burning heaters certified by the Canadian Standards Association or Canadian Gas Association.
- If the standby heating unit will use the normal house oil or gas supply, have it connected with shut-off valves by a competent service technician from the fuel supplier.
- Have flashlights, lanterns, candles and matches or other emergency lighting devices stored in a handy place.
- Check with your local power supply authority before arranging for installation of emergency generators for furnaces, appliances or lighting.
- Many radio and television station scan operate using emergency power. Have a battery- powered radio and spare batteries to keep you informed.

If there is a power failure:

- Check to see whether your home is the only one affected; so, notify your local electric supply authority.
- Turn on your battery-powered or crank radio for local information.
- Don't panic. Remember that even in very cold weather, a house with doors and windows closed will not become too cold for comfort for several hours.
- If you have a standby heating unit, turn it on before the house gets too cold. If the unit must be vented to the same chimney flue as the furnace, switch the furnace off before disconnecting the furnace flue.
- A house can be damaged by low temperatures, but the major threat is to the plumbing system. If a standby heating system is used, check to see that no part of the plumbing system can freeze.

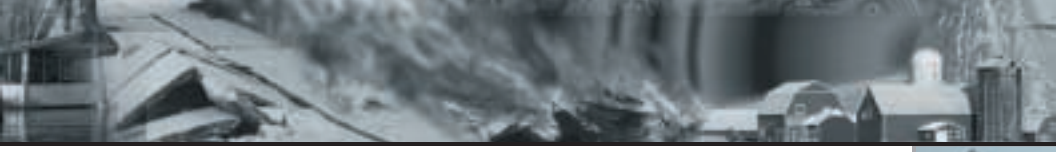
If all or part of the house must be abandoned, protect it by taking the following precautions:

- Turn off the main electric switch.
- Turn off the water main where it enters the house.
- Drain the water from your plumbing system. Starting at the top of the house, open all taps and flush toilets several times. Go to the basement and open the drain valve. Drain your hot water tank by attaching a hose to the tank drain valve and running it to the basement floor drain.
- Do not worry about small amounts of water trapped in horizontal pipes. Add a small amount of glycol or antifreeze to water left in the toilet bowl or sink or bathtub traps. This will prevent it from freezing and damaging the system.
- Listen to a battery-operated or car radio for more detailed local advice and instructions.

After the power returns.

- Switch on the main electric switch.
- Replace the furnace flue (if removed) and turn off the fuel to the standby heating unit.

- Turn on the water supply. Close lowest valves first and allow air to escape from upper taps.
- Make sure that the hot water heater is filled with water before turning on power.
- Rinse out dishwasher and washing machine if necessary.
- Warm house slightly above normal temperature for a few hours to allow it to dry thoroughly.
- If the power failure has been lengthy, check food supplies in refrigerators, freezers and cupboards for signs of spoilage. If a freezer door has been kept closed, food should stay frozen 24 to 48 hours.



Farm Emergency Fact Sheet #7

Some General Considerations For Emergency Communications

Introduction

Communications are essential to any farm operation. A communications failure can be a disaster in itself, cutting off vital activities. Communications are needed to report emergencies, to warn everyone of the danger, to keep families and employees informed about what's happening, to request assistance and resources, to coordinate response actions and to keep in contact.

Emergency Preparedness

- Plan for all possible disasters from a temporary or short-term disruption to a total communications failure.
- Consider the everyday functions performed by your operations and the communications, both voice and data, used to support them.
- Consider the impact if your communications were inoperable. How would this impact your emergency operations?
- Prioritize all communications. Determine which should be restored first in an emergency.
- Establish procedures for restoring communication systems.
- Talk to your communications vendors about their emergency response capabilities. Establish procedures for restoring services.
- Determine needs for backup communications for each function. Options include messengers, telephones, portable microwave, amateur radios, point-to-point private lines, satellite, high-frequency radio.

Emergency Communications

Consider the functions your operation might need to perform in an emergency and the communications systems needed to support them.

Methods of communication include:

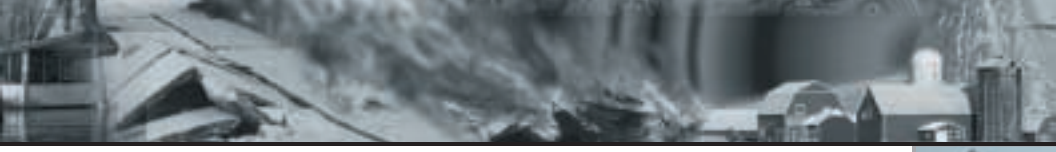
- Messenger
- Telephone, cellular
- Two-way radio (hand-held)
- Amateur radio (ham)
- Fax machine
- Satellite telephone
- Dial-up modems

Family Communications

In an emergency, personnel will need to know whether their families are okay. Taking care of one's loved ones is always a first priority.

Make plans for communicating with employees' families in an emergency. Also, encourage employees to:

- Consider how they would communicate with their families in case they are separated from one another or injured in an emergency.
- Arrange for an out-of-town contact for all family members to call in an emergency.
- Designate a place to meet family members in case they cannot get home in an emergency.

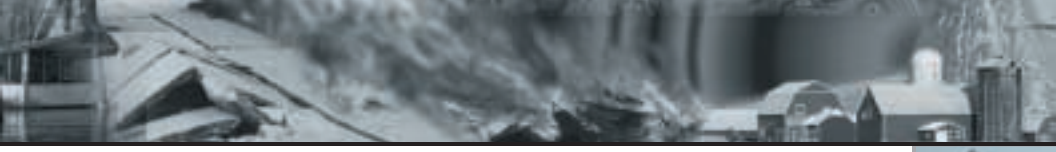


Notification

- Establish procedures for family members and employees to report an emergency. Inform family and staff of procedures. Assign trained personnel specific notification tasks.
- Post emergency telephone numbers near each telephone, on bulletin boards and in other prominent locations.
- Maintain an updated list of addresses and telephone and pager numbers of key emergency response personnel (from within and outside the facility).
- Listen for tornado, flood, winter storm, fire and other severe weather warnings.

Emergency Contact List

Refer to Module II, page 63.



Emergency Farm Fact Sheet #8

Environmental Considerations

A. Emergency Preparedness for Hazardous Materials Accidents

Hazardous materials are substances which, because of their chemical, biological or physical nature, pose a potential risk to life, health or property if they are released. Potential hazards can occur during any stage of use from production and storage to transportation, use or disposal. Hazardous materials accidents can range from a chemical spill on a highway to groundwater contamination by naturally occurring methane gas to a household hazardous materials accident.

Be familiar with local warning and notification methods.

Contact your local emergency planning committee to find out where reportable quantities of extremely hazardous materials are stored and used in your area.

Ask about community response plans if there is a hazardous materials accident at a plant or facility, or a hazardous materials transportation accident.

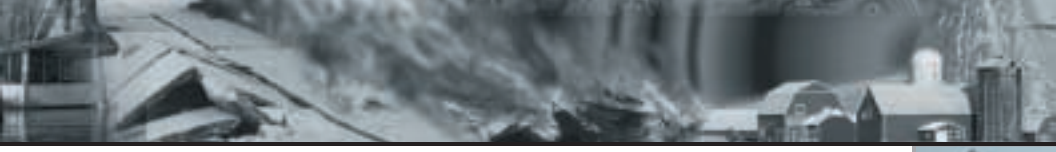
Preparing for Hazardous Materials Accidents

1. Go on a hazard hunt. Some cleaners can cause an explosion or fire if they come in contact with each other, water, heat or flames.

2. Make a list of the hazardous products you have on your premises. List the name of the product and emergency care information.

3. Store hazardous products according to safety recommendations.

- Store hazardous materials in a safe, dry location.
- Be sure all containers are closed to avoid spills and escaping vapors.
- Store flammable products and corrosive products in separate locations. The label will indicate if the product is corrosive or flammable.
- Place oily polishing rags or waste in covered metal cans.
- Never store aerosols on or near fireplaces, radiators, space heater, wood stoves, pilot lights, furnaces and kitchen appliances.
- Keep herbicides and pesticides away from any heat source.
- Store herbicides separately from pesticides. Herbicide vapors can contaminate other products.
- Store pesticides, herbicides and diesel fuel away from fertilizer. Their vapors can contaminate fertilizers. Periodically check hazardous product containers for deterioration and possible leaks.
- Check periodically to be sure that labels on hazardous products are secure and readable.
- Store hazardous products on high shelves or in locked cabinets to prevent poisoning of children and pets.
- Do not store flammable liquids such as gasoline and kerosene in a garage or utility room attached to the house.
- Never store flammable liquids or even a lawn mower filled with gasoline near a heat source such as gas water heaters, furnaces, radiators, space heaters, etc. Spontaneous combustion can occur if the flammable liquid vapors escape.



To prevent hazardous materials from being spilled during a disaster such as a flood, fire or earthquake, take the following preventive measures:

- Securely fasten shelves where hazardous materials are stored.
- Store incompatible products in separate locations so they will not come in contact with each other.
- Label the shelves where flammable products are stored.
- Store hazardous materials in a metal cabinet to protect them from fire.
- Dry off containers that get wet in a flood. Move them off damp shelves until the shelf material has dried thoroughly.
- Check labels on wet containers and re-glue or tape them securely before they come off completely.

What to Do If a Hazardous Materials Accident Occurs

1. If you witness a hazardous materials accident, spill or leak, call 911, your local emergency number or the fire department as soon as possible.
2. Stay away from the incident site to minimize your chances of contamination.
3. If you are caught outside during an incident try to stay upstream, uphill and upwind. Hazardous materials can be transported quickly by water and wind.
   - In general, try to go at least one mile from the accident area.
   - If you are in a vehicle, close off ventilation and close windows to reduce contamination or inhalation of the hazardous material.
   - If livestock are downwind, downhill or downstream of the incident, move them as far from the area as possible.
   - Do not enter the area or attempt to reach animals if you must pass the area of incident.

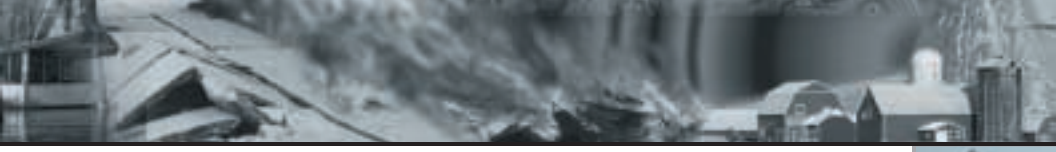
4. If you are told to evacuate, do so immediately. Before leaving your home or office, close all windows, shut vents and turn off attic fans to minimize contamination.

5. In some circumstances, it is safer to keep community residents inside. This is known as "in- place sheltering". If you are instructed to stay inside:

   - Follow all instructions carefully.
   - Seal entry routes as efficiently as possible. Close windows and doors and seal drafty places with wet towels, blankets or duct tape.
   - Turn off furnaces, air conditioners, vents and fans to keep fumes from entering the house.
   - If you are exposed to dangerous fumes, take shallow breaths through a cloth or towel.
   - Quickly fill up your bathtub with a supply of uncontaminated water and turn off the intake valve to your home.
   - Stay in protected areas of the house (bathroom, stairwell, basement) where toxic vapors are less likely to penetrate.
   - Close all fireplace dampers.
   - Seal any gaps around window air conditioning units, bathroom and kitchen exhaust fan grilles and stoves and dryer vents with tape and plastic sheeting, wax paper or aluminum wrap.
   - If local authorities warn of an outdoor explosion, close all drapes, curtains and shades. Stay away form windows to prevent injury from breaking glass.

6. Avoid contact with any spilled liquid materials, airborne mist or condensed solid chemical deposit. Keep your body fully covered and wear gloves, socks and shoes, even though these measures may offer minimal protection.

7. Avoid eating or drinking any food or water that may be contaminated.



After a Hazardous Materials Incident

1. Do not return home until authorities say it is safe.
2. Upon returning home, open windows and vents, and turn on fans to provide ventilation.
3. A person or item that has been exposed to a hazardous material may be contaminated and could contaminate other people or items. If you have come in contact with or been exposed to hazardous materials:
   - Follow decontamination instructions from your local authorities.
   - Stay away form water or showers until you know if the material reacts with water.
   - Seek medical treatment for unusual symptoms that may be related to hazardous materials release. If medical help is not available immediately and you believe you may be contaminated, remove all of your clothing and shower thoroughly (unless authorities advise otherwise). Change into fresh, loose, warm clothing and seek medical help as soon as possible.
   - Place exposed clothing and shoes in tightly sealed containers without allowing them to touch other materials and call local authorities to find out about proper disposal.
   - Advise others who come in contact with you that you may have been exposed to a toxic substance.
4. Report any lingering vapors or other hazards to your local emergency services.
5. Find out from local authorities how to clean up your land and property.

Reacting to a Hazardous Spill

1. If the spill is large and too big for one person to control and clean up, call 911 or your local emergency number as soon as possible.
2. Keep the area of the spill from spreading. Set up barriers and ventilate the area if it is inside the home or garage. Keep children and pets away.
3. Check label for instructions about contact.
   - Wear rubber gloves and boots.
   - Wear long pants and a long sleeved shirt to avoid skin contact.
4. Clean up as soon as possible.
   - Don't flush the spill away with a hose.
   - If dust or powder is spilled, limit air movement in the area and pick up the material in a way that minimizes making the dust or powder airborne.
   - If liquid is spilled, cover it with an absorbent material such as kitty litter, paper towels or old rags.
   - Sweep or scoop the solids and the original container into a plastic bag, also scoop up any contaminated dirt or gravel. Seal the plastic bag.
   - Scrub the area with detergent or water.
   - For very toxic liquid substances such as pesticides, cover again with absorbent materials and sweep or scoop up the absorbent into a plastic bag.
   - Scrub repeatedly until traces of the chemical are gone.
5. Place all cloths in a used plastic bag. Double bag, seal and label.
6. Completely rinse the area and any tools used.

7. Dispose of contaminated materials in an appropriate manner according to directions on the label.
8. If the spill is a very toxic product, decontaminate clothing and equipment to avoid contaminating your home and others.

B. Manure, Wastewater or Sludge Spills

1. Prevention

Prevent spills from liquid irrigation and drag hose systems by having an automatic shutoff on pumping equipment, or by radio communications with the pump operator to turn off the manure flow in emergency situations.

Check all irrigation, transfer lines, or valves prior to manure pumping or transferring. Look for defects and insecure connections. Do not position irrigation pipe joints over any watercourse, stream, municipal drain, or catchbasin. Make sure there is no chance of back siphoning when transferring to another tank.

Do not spread:

- Liquid manure on steep slopes or within 10 metres (30 ft.) of an open watercourse.
- Solid manure on wet steep slopes or within 5 metres (15 ft.) of an open watercourse.

2. Liquid Spreading of Manure, Wastewater or Sludge on Tiled Fields

On fields, where contamination of the flow in tile drains may be a problem, lightly cultivate the top few inches of soil prior to spreading. Apply manure at low enough rates to prevent

surface runoff. Monitor tile outlets before, during, and after spreading (up to a day), for any sign of water contamination by manure. A change in the water colour of running tiles indicates a potential manure spill. If any trace of manure is noticed stop applying, plug the tile, and take the necessary steps to handle the contaminated flow.

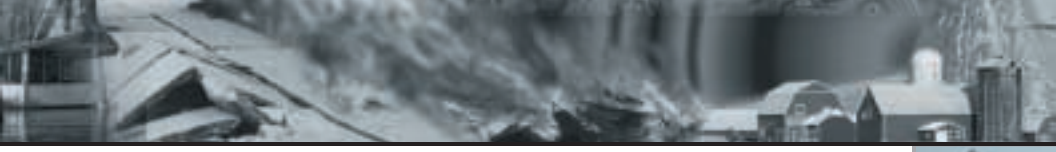
3. Steps to Take When a Manure, Wastewater or Sludge Spill Occurs:

- Eliminate the source of the spill if possible. Turn off all pumping equipment, plug all leaks, repair broken lines, etc.
- Immediately contact your local Ministry of Environment and your local municipality.
- Contain the manure, wastewater or sludge spill. For example, construct earthern berms with a scraper blade or loader, or use straw bales or sand bags, block drains/ watercourse/ditches and plug tile drains.
- Clean-up the spill. Any contained spills involving manure, wastewater or sludge should be spread onto land using proper land application rates.

C. Chemical Spills On the Farm

1. Prevention is an Important Part of an Emergency Plan

Learn how to handle and store chemicals properly. Avoid storing large amounts of chemicals on your farm. Buy only the amount you need. If you do have to store chemicals on the property, make sure that they are stored in an approved storage, (e.g. signed, ventilated and locked in a separate facility). During the storage period, check the products frequently for damage to containers or leaks.



In the event a spill does occur, take the appropriate precautions to avoid pesticide exposure.

2. Record Keeping

Keep a record of the pesticide products you use and store on the farm. Keep this list in a separate location. In the event of a spill, fire, or theft, this list will prove invaluable for assistance by emergency personnel.

3. Steps to take when a Chemical Spill Occurs:

- Identify the product and eliminate the source of the spill if possible (protect yourself against pesticide contamination).
- Immediately contact your local Ministry of Environment. If an explosion/fire occurs or there is a risk of one, contact the fire department.
- Contain the spill.

For liquid spills:

- cover spill with a thick layer of absorptive material (soil, vermiculite, kitty litter, etc.).
- allow pesticide to be soaked up by the absorptive material.
- sweep or shovel absorptive material into a waste drum.

For dust, granular, or powder spill:

- Sweep or shovel into waste drum.
- Clean up the spill.
- Contact your Ministry of Environment for the appropriate method of disposal and decontamination.

D. Emergency Plans for Petroleum Spills

1. Prevention is an Important Part of an Emergency Plan

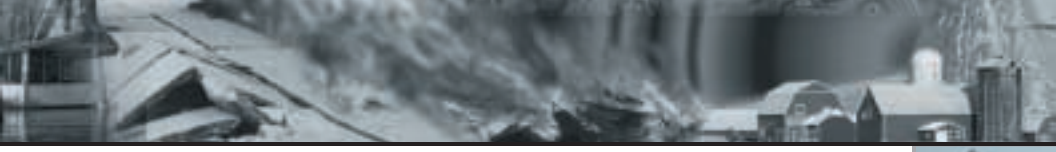
Prevent spills during the refueling process by using fuel dispensers (nozzles) which automatically shut off when the tank is full, or when the handle is released. Make sure the tanks and nozzles are secured and locked when not in use. When transporting fuel to the field, use only approved containers and be sure they are safely secured. Check to see that all above ground/under ground storage tanks and piping are properly protected against corrosion. Diking is excellent protection against a spill from a tank.

2. Record Keeping

Records of monitoring should be kept for all tanks. Monitoring may only be visual inspections on a weekly basis or it may require a full inventory control.

3. Steps to Take when a Petroleum Spill Occurs:

- Eliminate the source of the petroleum spill if possible.
- Immediately contact your local Ministry of Environment or your local Municipality. If an explosion/fire occurs or there is a risk of one due to a petroleum spill, also contact the fire department.
- Contain the spill.
- Construct earthern berms with a scraper blade or loader, or use sand bags.
- Clean up the spill.



- Any contained spill involving petroleum should be scooped up or sucked up with a vacuum tank or soaked up with appropriate absorbent materials. Contact your Ministry of Environment for the appropriate method of disposal and decontamination.

E. Farm Wastes That Cannot Be Composted

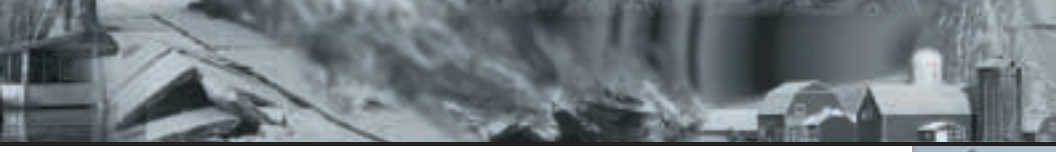
Farmers must safely dispose of farm wastes that cannot be composted. Throwing wastes into a farm dump, burning them or storing them improperly is unacceptable. Proper disposal will prevent pollution of the air, soil, and surface or ground water. It will also protect the health and safety of people, farm animals and wildlife.

There are five main categories of farm wastes that cannot be composted:

- animal health-care products
- packaging, containers and related materials
- farm building materials
- machinery and equipment and
- preservatives

Farmers should use the following "environmentally acceptable" options for reusing, recycling or returning these categories of farm wastes:

- Scrap dealers
- Original suppliers of the product
- Hazardous waste depots
- Licensed waste disposal sites



Emergency Farm Fact Sheet #9

Finance and Administration

A. Inventory and Protection of Valuable Records

Protecting family documents is just one part of being prepared to deal with natural disasters.

An up-to-date household inventory is a very valuable resource. When making the inventory, do not overlook tools stored in the garage, lawn furniture or food in the freezer. You may want to include a video or photographs of your inventory. An accurate inventory will help you determine if you have enough insurance to cover the contents of your home. Keep the inventory current.

Similarly, you should keep an updated listing of all your farm assets including buildings, equipment, vehicles, other fixed assets, livestock, crops, feed, and supplies and materials used in your farm operations. You should maintain an annual sketch or site plan of all of your farm assets including fence lines and fields.

Additional copies of valuable farm records should be in the care of a lawyer, the administrator of wills, business associates or trusted family members residing outside of your home. The need for greater care of valuable papers increases as your estate size and family size increase, and as family goals and life patterns become more complex.

Table 1 is a list of the valuable papers that need to be in a safe deposit box, especially during a disaster such as a hurricane.

Valuable Papers To Keep In Your Safe Deposit Box: A checklist

- ☐ Stocks, records and bond certificates.
- ☐ Property records, deeds, titles and/or leases
- ☐ Household inventory
- ☐ Contracts (including promissory notes)
- ☐ A copy of your will (his and hers)
- ☐ Auto title
- ☐ Birth certificates
- ☐ Death certificates
- ☐ Marriage certificates
- ☐ Divorce decrees
- ☐ Social insurance cards
- ☐ Government savings bonds
- ☐ Important receipts and bills of sale
- ☐ List of insurance policies
- ☐ Automobile bill of sale
- ☐ Military service records
- ☐ Copyrights and patents
- ☐ Adoption papers
- ☐ Custody papers
- ☐ Passports
- ☐ Citizenship papers
- ☐ Religious records
- ☐ Income tax returns
- ☐ Retirement papers

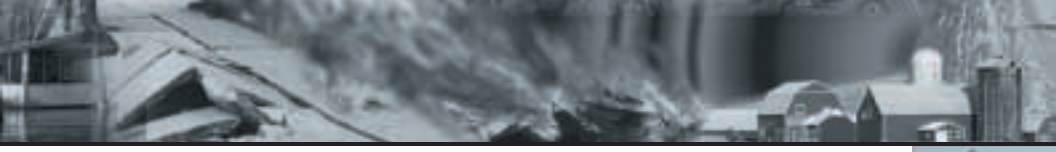


Table 2 is a list of valuable papers that need to be in your possession at home at all times in a waterproof, fire-proof locked box.

Valuable Papers To Keep At Home In A Safe Place

- ☐ Advisors' names and addresses
- ☐ Guarantees and warranties
- ☐ Educational records
- ☐ Employee benefits
- ☐ Health records
- ☐ Insurance policies
- ☐ Loan payment books
- ☐ Copies of birth and marriage certificates
- ☐ Driver's license numbers
- ☐ Income tax returns
- ☐ Appliance manuals
- ☐ Current bank balances
- ☐ Rental property records
- ☐ Safe deposit records and inventory of items

B. Insurance: "The First Line of Defense"

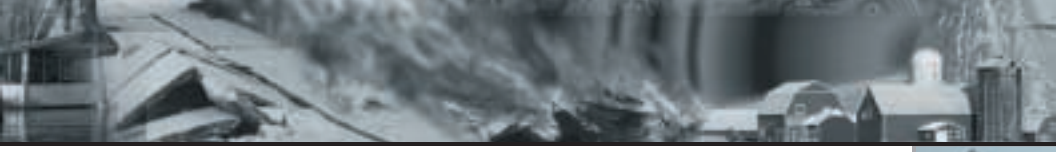
Many farmers discover that they are not properly insured only after they have suffered a loss. Lack of appropriate insurance can be financially devastating. It is important to discuss the following topics with your insurance agent/broker/advisors to determine your individual needs at least annually.

- How will my assets be valued? Market value or depreciated value?
- Does my policy cover the cost of required upgrades to code?

- How much insurance am I required to carry to avoid becoming a co-insurer?
- What perils or causes of loss does my policy cover?
- What types of emergencies are not covered by my policies?
- What are my deductibles?
- What does my policy require me to do in the event of a loss?
- What types of records and documentation will my insurance company want to see? Are records in a safe place where they can be obtained after an emergency?
- To what extent am I covered for loss due to interruption of power? Is coverage provided for both on- and off-premises power interruption?
- Am I covered for lost income in the event of interruption of my farm operations because of a loss? Do I have enough coverage? For how long is coverage provided? How long is my coverage for lost income if my business is closed by order of civil authority?
- How will having an emergency plan affect my rates?
- Are my buildings insured for collapse due to ice and snow loads?
- What about crop insurance?

Seven Steps in Making an Insurance Claim

1. Contact your insurance agent or company immediately and report the damage. Give your name, address, policy number and the date and time of loss.
2. Take pictures of the damage, if possible, before beginning repairs. If you repair small items such as TV antennas, window coverings, or fences before the adjuster arrives, it may be difficult to prove the damage. Pictures can also be used as evidence for tax deductions.
3. Protect your property from further damage or theft. Patch roofs temporarily. Cover broken window with boards or plastic. If household furnishings are exposed to weather, move them to



a safe location for storage. Save receipts for what you spend and submit them to your insurance company for reimbursement.

4. Keep Accurate Records:
   - List cleaning and repair bills, including materials, cost of rental equipment and depreciation of purchase equipment.
   - List any additional living expenses you incur if your home is so severely damaged that you have to find other accommodations while repairs are made, including motel and restaurant bills, home rental or car rental.
   - List all actual losses, including furniture, appliances, clothing paintings, artifacts, food and equipment, regardless of your intent to replace the objects. Photographs of ruined homes or objects are excellent evidence for future documentation.
5. Try to document the value of each asset lost or damaged. Bills of sale, canceled checks, charge account records and insurance evaluations are good evidence. If you have no such records, estimate the value, and give purchase place and date of purchase. Include this information with your list.
6. Contact a reputable firm to have your damage repaired. Sometimes undependable workers enter a damaged area, make cheap repairs, and leave before the residents discover that the repairs are inadequate and will not meet insurance requirements. If your local contractor can not do the work, ask him to recommend someone.
7. Don't be in a hurry to settle your claim. Although you may want to have your damage claim settled as quickly as possible, it is sometimes advisable to wait until all damage is discovered. Damages which have been overlooked in an early estimate may become apparent later. If you are dissatisfied with the settlement offer, talk things over with your agent and adjuster. Check your policy to see what settlement steps it outlines.

C. Government & Other Assistance Programs

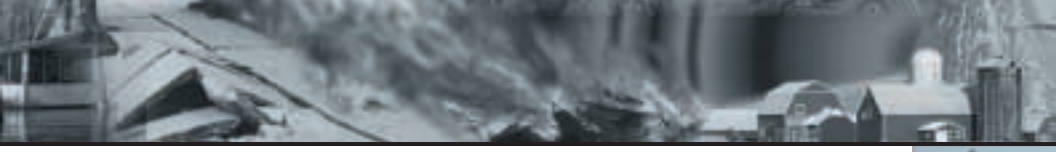
A wide range of services are available to the general public and the farm sector from all levels of government (local, provincial and federal). In addition, non-governmental organizations and the private sector play an increasingly important role in providing direct financial assistance and other support services to disaster victims.

In general, government services include the following;

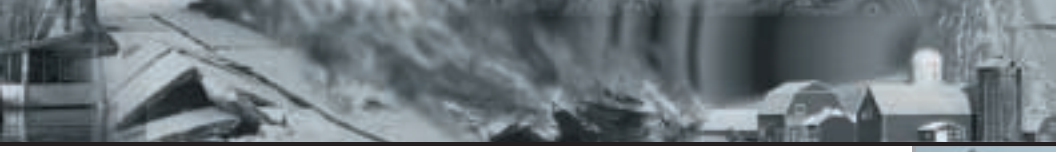
- ☐ monitor and assess the emergency.
- ☐ issue warnings & declare emergency.
- ☐ manage evacuation, if necessary.
- ☐ rescue and assistance services.
- ☐ coordinate planning, response and recovery operations.

Specific programs include;

- ☐ police, fire protection and emergency medical services.
- ☐ public health and sanitation services.
- ☐ communications and transportation services.
- ☐ social services, welfare & temporary housing.
- ☐ building and area inspections.
- ☐ public works, clean-up/restoration.
- ☐ donations.
- ☐ financial assistance.
- ☐ crop insurance.
- ☐ income stabilization.
- ☐ federal & provincial safety nets.
- ☐ federal & provincial disaster financial assistance programs.



List of Programs for your area:



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