

# Disposing of carcasses after bushfire flood or drought

*Bushfire, flood and drought may result in large numbers of animal carcasses requiring disposal.*

*This document covers the topic of natural disasters (bushfire, flood and drought) but does not include emergency animal diseases (EAD) or routine livestock mortalities.*

*It seeks to provide guidance to livestock producers on the options for carcass disposal in an agricultural emergency during a bushfire, flood & drought.*

## IMPORTANT INFORMATION

In addition to the guidance provided in this document refer to Environment Protection Authority (EPA) Fact sheet: Publication 1738 Disposal of bushfire waste  
<https://www.epa.vic.gov.au/about-epa/publications/1738>

For managing routine livestock mortalities refer to the EPA publication Farm Waste Management.  
<https://www.epa.vic.gov.au/about-epa/publications/iwrg641-1>

## AGENCY RESPONSIBILITIES

The Emergency Management Manual of Victoria (Part 7 – Nov 2016) lists several agencies with responsibilities in the disposal of carcasses because of an agricultural emergency.

Specific agency responsibilities include:

Municipal councils: coordinating clean-up activities, including disposal of dead animals (domestic, native & feral)

DJPR (Agriculture Victoria): provision of advice about the disposal needs of dead or injured animals

EPA: provide emergency approvals in line with the Environment Protection Act (1970) where required e.g. mass animal burials and; ensuring that appropriate waste disposal methods are adopted, and environmental clean-up activities conducted.

## DISPOSAL OPTIONS

**On-farm burial is the traditional method of carcass disposal during bushfire, flood and drought. Whilst it is quick, effective and relatively cheap, other options need to be considered before initiating a major burial program.**

Improper carcass disposal can result in contamination of soil, groundwater and waterways. Access to poorly disposed carcasses can also allow for disease to spread to other stock through scavengers, mosquitoes and vermin.

### Rendering

Rendering is an effective method of converting animal carcasses into saleable products such as meat and bone meal and tallow. Rendering plants are located throughout Victoria and some have the capacity to process large volumes of animal material.

The practicality of using rendering as a disposal method may be limited by the rendering companies willingness to receive product, suitability of product (such as degree of burns, decomposition, emaciated stock, amount of wool), plant capacity and cost of transport.

### Knackeries

Knackeries provide an efficient means of disposing of dead, unsaleable or suffering livestock. Carcasses can be processed for their fresh meat, saleable hide, or offal.

For commercial reasons, knackeries prefer to process larger animals such as cattle and horses. Knackeries may pick up sheep carcasses, but this is usually as a service and generally only in small numbers. It is unlikely that knackeries will accept moderate to severely burnt livestock.

### Licensed landfill

Disposing of carcasses to licensed landfill is an acceptable and effective option for agricultural emergencies.

The advantage of landfill is that it may already be licensed to accept animal materials (putrescible waste) and generally has the existing infrastructure to manage long-term containment issues (such as leachate, gas, security).

Another advantage of landfill is that many sites are owned by local government and may already be identified as potential disposal sites under Municipal Emergency Management Plans.

### On-farm burial

When planning for on-farm burial there are many factors that need to be considered. These issues include the environment, statutory controls, logistics and safety.

As a guide a burial site should be located:

- on heavier soil of low permeability and good stability
- on elevated land but with a slope of less than 5% (preferably less than 2%)
- above the one in 100-year flood level
- at least 200 metres from any surface water (creek, river, lake, spring)
- at least 200 metres from any ground water supply (stock and domestic bore)
- at least two metres from the bottom of pit to the water table level
- at least 300 metres from any sensitive use (such as a neighboring house)
- a safe distance from underground and above-ground infrastructure (such as a powerline, telephone line, gas line, waterpipes, sewerage)
- well away from the view of the general public.

Operators should also:

- cover carcasses with at least two metres of soil
- slightly mound pits after backfilling to allow for subsidence and promote runoff rather than infiltration
- where necessary, excavate cut-off drains upslope of the burial pits to direct surface run-off away from the pits
- where possible, plan destruction activities close to burial site
- have good, safe access to site for machinery

Other important factors that need to be considered are:

- monitoring programs (if required by EPA)
- leachate and gas management (if required by EPA)
- use of synthetic liners in pits (if required by EPA)
- native flora and fauna planning controls, heritage overlays, native title and covenants

Final site selection usually involves the agreed best outcome after consultation with relevant agencies and a risk assessment of all factors.

### Site Assessments

A potential burial site should be physically assessed for suitability by an EPA representative. In a bushfire response where there are many on-farm sites this may not be practical and decision making may be delegated to an experienced representative from another agency. The location of each disposal site should be recorded for future reference using a Global Positioning System (GPS).

### Pit Construction

Where appropriate, the most suitable strategy for carcass disposal is to construct small, separate burial pits to accommodate 10-15 carcasses each.

The typical method of digging a pit is to construct a deep, narrow, vertically sided pit (trench burial), but this will be dictated by the soil stability.

Where multiple pits are necessary, spacing between pits should be a minimum of 25 metres.

Where soil stability is of concern, a battered design should be used to enhance operator safety. Worksafe Victoria can provide information on safety precautions for emergency trenching operations <https://www.worksafe.vic.gov.au/>

The preferred equipment for constructing this type of pit is an excavator. During construction, topsoil should be separated from subsoil for later return to the top during pit closure. Excavated material should be stored along one side or at the ends of the pit, depending on the operation. Surplus soil should be heaped as overfill.



Example of on-farm trench burial

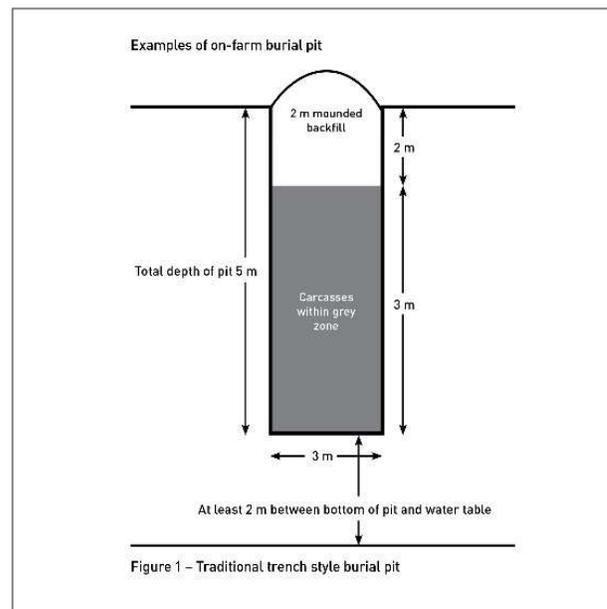
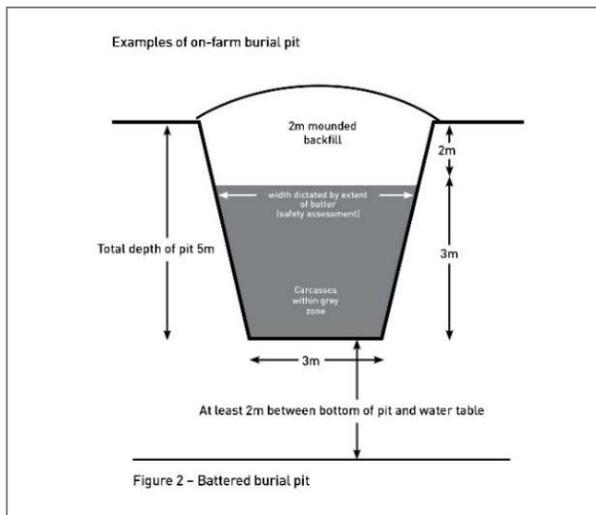


Figure 1 – Traditional trench style burial pit



**Figure 2 – Battered burial pit**

### Pit Dimensions

In designing dimensions of a pit, consideration should be given to the method used to fill the pit with carcasses. Typically, carcasses will be unloaded (out of tip trucks) and then pushed into the pit (loader, bulldozer or excavator) from one of the long sides.

It is critical that a safe operating zone is established as part of a documented work procedure. Excavators can be a good option to fill pits with carcasses, especially where soil stability is a potential issue.

When using on-farm trench burial the following dimensions can be used as a guide:

- **Depth:** Four to five metres (depending on reach of machinery, soil stability and depth to water table). Base of pit to be at least two metres above water table level.
- **Width:** Not greater than three metres wide (to allow for even spread of carcasses in pit)
- **Length:** Depends on number and size and of carcasses to be buried (volume).
- **Backfill:** Two metres of backfill to be placed over carcasses.
- **Volume:** Carcass volume will vary according to number and size of animals:

Previous drought experience has shown that approximately 10 adult sheep in poor condition and with limited wool will take up one cubic metre of pit space. (*North-East Region Flock Reduction Scheme*)

- As a guide, allow 1.5 cubic metres of pit space for one adult beast or five adult sheep in good condition. (*AUSVETPLAN Disposal Manual, 2015*)

The slashing of the abdomens of carcasses prior to burial (to reduce the buildup of gas) is not recommended for sheep or other small animals, or badly decomposed cattle. For freshly dead cattle a risk assessment should be conducted to

determine if the benefits of slashing outweigh the safety risks to the operator. Machinery may be used to puncture the abdomens of cattle to reduce manual handling risks.

### Use of lime

The addition of lime to burial pits is not recommended. Lime has been shown to slow down the naturally occurring decomposition process.

For above ground exposed carcasses and carcass fluids, where there is an immediate need to discourage insects and flies spreading infection and to mitigate odours, lime can be applied to absorb liquid and reduce the speed of decomposition.

## PERSONAL (WORKER) SAFETY

The burial of animal carcasses in trenches deep enough to control health risks can potentially create a risk to workers of trench collapse. Safety of onsite staff and contractors must always be considered:

- Minimum of two people should always be at the pit site
- Maintain a safe working distance from pit edge
- No persons should be allowed to enter the pit
- Rescue items such as ropes should be available in case of collapsing walls or a person falling into the pit
- Appropriate personal protective equipment (PPE) (such as gloves, overalls and dust masks) should be used
- Assess every manual handling task. Use mechanical aids where possible
- All persons should be properly briefed on the site operations and the safety plan

### Personal (worker) protection

Disposing of large numbers of animal carcasses can potentially have effects on human health. For information on health concerns relating to bushfires refer to <https://www2.health.vic.gov.au/about/news-and-events/healthalerts/health-concerns-bushfires>

As a general rule, carcasses should be handled as little as possible, cuts or broken skin should be cleaned and covered with waterproof dressings prior to commencing disposal activities and washing hands with soap and clean water should be performed after contact with animals and removing of PPE.

### Personal Protective Equipment (PPE)

Take reasonable efforts to protect yourself from the inhalation of dust or other aerosols particularly where Q fever infection may be a risk. Wearing a P2 Mask (Particulate respirator) should be considered and assessed on a case by case basis.

Mandatory items:

- Gloves
- Leather or rubber boots
- Clothes that cover exposed skin
- (long sleeves/trousers)
- Eye protection

In some instances, worker illness and injury – or accident event may be classified as a reportable event to the Safety regulator Worksafe Victoria.

<https://www.worksafe.vic.gov.au/report-incident-criteria-reportable-incidents>

### Safe use of plant and equipment

Prior to commencing carcass disposal, it is important to ensure you use the most appropriate machinery for the job and ensure operators know how to use and maintain machinery correctly. Contact with overhead powerlines and underground cabling pose extreme risk in these situations. Ground conditions will impact the stability of machinery, assess this and modify work accordingly.

## SCALE OF RESPONSE

The scale of the incident response will have a major impact on the available methods of disposal.

In a small response, activities may be confined to on-farm burial. In a larger response, communal burial sites may be used for animals from a number of affected properties.

Communal burial sites may be located on private land or may be on publicly owned land such as licensed landfills, unlicensed landfills, quarries, or other greenfield sites.

As a response escalates the burial methods may change from trench burial to mass burial, where pit dimensions are significantly modified. Mass burial usually requires significant site assessment and enhanced environmental controls. In some instances, an approval to discharge waste may need to be issued by EPA (Section 30A *Environment Protection Act, 1970*).

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ISBN 978-1-76090-357-2 (pdf/online/MS word)

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