



## Disposing of carcasses in response to bushfire, flood or drought

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The purpose of this advice note is to provide a guide for the effective disposal of large numbers of carcasses in response to bushfire, flood or drought. It does not intend to cover the topic of emergency animal diseases (EAD) or routine livestock mortalities. For managing routine livestock mortalities refer to EPA Publication 660.1 "Waste management on farms".

### Agency Responsibilities

The Emergency Management Manual of Victoria (January 2006) lists several agencies with responsibilities in the disposal of carcasses as a result of an agricultural emergency.

Specific agency responsibilities include:

**Municipal Councils:** coordination of clean up activities, including disposal of dead animals (domestic, native & feral)

**Department of Primary Industries:** provision of advice about the disposal of dead or maimed stock.

**Environment Protection Authority:** ensuring that appropriate disposal methods are adopted for wastes resulting from response activities.

### Disposal Options

The traditional method of carcase disposal in an agricultural emergency (bushfire & drought) is on-farm burial. This method is reasonably quick, effective and relatively cheap. However before initiating a major burial program other disposal options should be considered.

#### 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 (eg. degree of burns, 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 licenced 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 (ie. 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 1 in 100 year flood level
- at least 200 metres from any surface water (creek, river, lake, spring, dam)
- at least 200 metres from any ground water supply (stock and domestic bore)
- at least 2 metres from the bottom of pit to the watertable level
- at least 300 metres from any sensitive use (eg. neighbouring house)
- a safe distance from underground and aboveground infrastructure (eg. powerline, telephone line, gas line, waterpipes, sewerage)
- well away from the view of the general public

Operators should also:

- cover the carcasses with at least 2 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 (as 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 (local, state and federal)
- 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 a large number of on-farm sites this may not be practical and decision making may be delegated to an experienced representative from another agency. Where practical, a GPS reading should be recorded for each site.

**Pit Construction**

The preferred method of digging a pit is to construct a deep, narrow, vertically sided pit (trench burial).

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 location of destruction. Surplus soil should be heaped as overfill.

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 trenching operations.

**Pit Dimensions**

In designing dimensions of a pit, consideration should be given to the methods used to fill the pit with carcasses. Generally carcasses will be unloaded (out of tip trucks) or pushed into the pit (loader or dozer) from one of the long sides. Excavators can be used to fill pits with carcasses, especially where soil stability close to the pit edge is questionable or where synthetic liners are required.

When using on-farm trench burial the following dimensions are recommended:

Depth: 4-5 metres (depending on reach of machinery, soil stability and depth to watertable). Base of pit to be at least 2 metres above watertable level.

Width: Not greater than 3 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: 2 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 1 cubic metre of pit space. (North-East Region Flock Reduction Scheme)
- As a guide, allow 1.5 cubic metres of pit space for 1 adult beast or 5 adult sheep in good condition. (AUSVETPLAN Disposal Manual, 1996)



*Figure 1. Example of on-farm trench burial (January 2006)*

The slashing of the abdomens of carcasses prior to burial (to reduce the buildup of gas) is not recommended for sheep. For cattle a risk assessment should be conducted to determine if the benefits of slashing outweigh the safety risks to the operator. Alternatively, machinery may be used to puncture the abdomens of cattle carcasses prior to burial.

**Personal Safety**

Safety of staff must be considered at all times:

- At least two people should always be at the pit site
- Rescue items such as ropes should be available in case of collapsing walls or a person falling into the pit
- No persons should be allowed to enter the pit
- Appropriate personal protective equipment (PPE) should be used if necessary eg. gloves, overalls, dust masks
- All persons should be properly briefed on site operations and the safety plan.

**Scale of Response**

The scale of response will have a major impact on the method 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 eg. licenced landfills, unlicensed landfills, quarries, aerodromes or other greenfield sites. As a response escalates the burial method 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 of the Environment Protection Act, 1970).

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