

Preventing haystack fires

A GUIDE FOR FARMERS



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What causes haystack fires?

Haystack fires have a range of causes, such as sparks from machinery and equipment, embers from nearby burn-offs, or bushfires and lightning strikes. Hay can also self-ignite when excessive heat builds up in a haystack. This is called spontaneous combustion and is the leading cause of haystack fires in Victoria.

Haystack fires can happen in any type of bale stored in a haystack. Even hay stored as single bales can spontaneously ignite under some conditions.

Why does hay heat?

If hay is cut too 'green' (the internal plant moisture content is too high) or if some of the hay becomes damp before, during or after baling, a complex series of biological and chemical processes may cause the hay to heat up. This is because the plant material is still alive and using energy (respiration) and that microorganisms, such as bacteria and fungi, are able to grow in the moist environment. These processes generate heat which may result in the loss of dry matter, nutritional value and reduced palatability as fodder.



Haystack fires can spread quickly into the surrounding area and often result in thousands of dollars of damages.

If heating remains undetected and the stack is not pulled apart to allow heat and moisture to escape, the temperature within the bales will keep rising. When the temperature reaches about 70°C, it may then increase rapidly to the point of spontaneous ignition (at about 180°C). Spontaneous ignition may occur within two weeks of baling and may continue to pose a threat more than three months afterwards.

Signs of heating hay

Regularly monitor all haystacks for signs that the hay is heating up. You can do this by using a temperature probe or a crowbar. It may, however, be more difficult to detect heat deeper inside the stack. Other signs of heating include:

- ▶ steam rising from haystacks
- ▶ condensation or corrosion under hayshed roofing
- ▶ mould growth in or on bales
- ▶ unusual odours (burning, musty, a pipe tobacco or caramel smell)
- ▶ slumping in sections of the haystack

Minimising the risk

Make sure hay is fully cured (dead and dry) and at the recommended moisture content before baling. This will vary depending on the type of crop and bale being used. Use a moisture meter to check hay moisture levels throughout the baling process. Be sure to test plant nodes and heads inside leaf sheaths for hidden moisture, particularly if baling drought-affected cereal hay.

Just one damp bale is enough to ignite a haystack, so make sure you protect all bales from rain, leaking roofs and spouts, and runoff. If some bales become damp, they should be stored separately and closely monitored.

Make sure haystacks are limited in size and have enough airflow to allow heat and moisture to escape.

It's important to know the history and moisture content of any hay you purchase.

Store hay away from possible sources of ignition (such as roadsides, workshops, and fuel and chemical storage areas) and away from vegetation.

Be careful when using vehicles, machinery and equipment near haystacks, especially on high fire risk days.

Store hay well away from powerlines. If hay does ignite under or near powerlines, it could be very dangerous and may disrupt local power supply.

Protecting your assets

Store hay in a number of different locations and limit the size of the stacks. This will reduce the risk of losing all your hay if a fire does occur.

Do not store vehicles, machinery or equipment in the same location as your hay.

Create and maintain fuel breaks around haystacks.

The wider the break, the more useful it will be at helping to stop a haystack fire from escaping into the surrounding area, or to stop a fire from reaching your stored hay.

What to do if your hay is heating

If there are signs that the hay is starting to heat, pull the stack apart to improve airflow and allow the bales to cool.

Be aware that very hot hay may suddenly catch alight if it is pulled apart. If any part of the stack is near or above 70°C or if you see or smell smoke, you should call Triple Zero (000) immediately and ask for FIRE.

Do not walk across hay that may be heating. Charred bales inside the stack may suddenly collapse and result in entrapment, and the rush of air may result in a sudden flare-up.

Preventing haystack fires

Key things to remember

- Ensure hay is fully cured before baling.
- Bale hay at the correct moisture level.
- Know the history of hay that you purchase, particularly its moisture content.
- Protect hay from rain and leaking roofs and cover stacks with hay caps.
- Store hay in a number of different locations.
- Limit the size of stacks.
- Do not store vehicles, machinery and equipment in your hayshed.
- Create and maintain fuel breaks around your haystacks.
- Regularly monitor stored hay for signs of heating.

Further information

Agriculture Victoria

agriculture.vic.gov.au

Australian Fodder Industry Association

afia.org.au

Grains Research and Development Corporation (GRDC)

www.grdc.com.au

Country Fire Authority

cfa.vic.gov.au

Contact

CFA Community Safety **(03) 9262 8444**
or cfa.vic.gov.au

VicEmergency Hotline **1800 226 226** (or via National Relay Service on **1800 555 677** if you are hearing impaired).

Translating and Interpreting Service for translated information from VicEmergency call **131 450**.

Dial **000** if you see smoke, flame or embers.