

Preventing harvest fires

A GUIDE FOR FARMERS



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In an average Victorian summer, there are about 200 harvest-related fires.

What starts as a small fire can quickly spread to the whole paddock within minutes making it vital to be prepared and to do as much as you can to prevent fire.

What causes a harvest fire?

From observations and working with industry partners we estimate 20 percent of harvest fires are started by a mechanical fault, like faulty bearings, hydraulics, or brakes. The vast majority start in the engine bay where dust and debris are blown by cooling fans, igniting on the hot exhaust manifold or turbo.



A fire developing in the header's engine bay can spread to the crop before it's noticed. In the 10 to 12 minutes it usually takes to get water onto it, a fire can grow to 80 metres by 100 metres. On a day with 35 km per hour winds a fire can grow to 10 to 15 hectares within 30 minutes.

Plan and prepare for fire

You should make fire safety a part of your harvest management plan. Follow these steps to be prepared for fire:

- ▶ Talk to everyone working on your property during harvest so they know the plan, their responsibilities, where fire equipment will be kept, how to react, who to call and how to use UHF radio.
- ▶ You're in charge and are responsible for safe operations. All contractors on your property need to know what you expect from them.
- ▶ Plan where water carts will be positioned within the paddock. Many crop farmers have more than one. A water cart should be a dedicated resource.
- ▶ Maintain two-way communication between the harvest operator and people on the ground.
- ▶ Check all fire extinguishers are in place and are fully charged. Include dry powder extinguishers for your vehicles and large water extinguishers on the header.

To help contain any fire you should create four-metre fuel breaks around the harvest area. During harvest you should not let the harvester get too far away from the water cart as you'll need to get water onto a fire quickly.

Harvester Maintenance and Inspection

Having a pro-active maintenance and inspection routine will not only help reduce fire risk, but it will also cut down your machinery downtime and prevent expensive repair bills. Get to know your headers. Identifying problem areas with different harvester makes and models is critical for managing fire risk.

CFA Voluntary Grain Harvesting Guide

This weather ready reckoner lets you know when to stop harvesting when conditions pose a fire risk.

TEMP	5	10	15	20	25	30	40	50	60	65	RH%*
15°C	31	35	38	40	43	45	49	53	56	58	Average wind speed (KPH)
20°C	29	33	36	38	40	43	46	50	53	55	
25°C	27	30	33	36	38	40	44	47	50	52	
30°C	25	28	31	33	35	37	41	44	47	49	
35°C	23	26	28	31	33	35	38	41	44	46	
40°C	21	24	26	28	30	32	35	39	41	43	
45°C	19	22	24	26	28	30	33	36	39	40	

* RH% Relative humidity

On the table, find the temperature in the red column. Read across until you reach the current relative humidity indicated in blue. The corresponding number in the yellow area is the wind speed at which it's recommended that you stop harvesting.

A good tip is to talk to dealers and other growers to find out where your machine's fire risks are. Factors such as engine bay location and layout can make a difference.

When inspecting your harvester you should pay close attention to risk areas like dust traps, rubbing or slipping belts, and failure prone bearings. Checking and maintaining these areas more regularly will ensure you can fix issues before they become a problem or cause a fire.

Harvester Hygiene

The operator should take time to clean down the machine during harvest. The timing of this regular cleaning will depend on the crop type and how hot the day is. For example, lentils and lupins require frequent clean downs as these crops are more prone to fire than cereals because the residue more readily sticks to hot surfaces.

A harvester clean down can take minutes using a high-capacity air compressor with a long hose. Ensure you're wearing appropriate safety equipment like a dust mask and eye protection and open the appropriate panels leaving the engine cover closed. Starting from the top of the harvester blow the chaff and dust off the machine. When completed, repeat the process in the engine bay which is the most important area to keep clean. Once the top is cleaned down, move to the ground, open the panels, and blow out the dust and debris to ensure the harvester is thoroughly cleaned.

Monitor harvest conditions

A fire typically happens when you get a build-up of dust and debris on the exhaust manifold or turbo. To meet emissions regulations, exhaust temperatures of modern equipment are much hotter than older machines and manifold temperatures can exceed 600°C.

Backing off your ground speed one or two kilometres per hour can reduce these temperatures to below ignition point for most crops. A good strategy is to slow down when wind is blowing dust and debris into and around the header and speed up again when harvesting into the wind.

By monitoring conditions before and during harvest you can cut down the risk of fire. Suspend harvesting operations when the local conditions are hot, dry and windy. The recommended conditions are shown in the Voluntary Grain Harvesting Guide above.

Further information

Agriculture Victoria
agriculture.vic.gov.au

Grains Research and Development Corporation (GRDC)
www.grdc.com.au

Country Fire Authority
cfa.vic.gov.au