



Shropshire
Fire and Rescue Service

**MAKING
SHROPSHIRE
SAFER**



Farm Fire Safety

What you need to know



Keeping farms safe in Shropshire

The number of farm related fires remains high within Shropshire and the effects can be devastating, resulting in the loss of machinery, hay and straw, livestock and the destruction of buildings and vehicles.

81% of Shropshire land area is designated to agricultural production compared to 68% nationally. There are over 3500 commercial holdings and more than 9500 workers within this business sector.

Between 2018 – 2021, the Shropshire region saw a 63% increase in agricultural vehicle and machinery fires.

Don't let your farm become a statistic!

You can prevent these fires following our advice.

All farms are at risk

This booklet highlights dangers commonly found on farms and identifies simple ways to reduce the risk. Farm fire safety includes human safety, farm animal welfare and property and environmental protection

A serious fire on a farm can affect the financial stability of even the most well run business. 40% of businesses that suffer a serious fire never trade successfully again

For many years farmers and landowners have been adapting and diversifying buildings and land for alternative uses in ways which can boost farm incomes by adding value to farming products or by accepting enterprises which can thrive in a farm setting.



Many farms now offer a diverse range of services including bed and breakfast accommodation, farm shops, visitor's centres, mazes and stabling to name a few. These activities all pose differing fire risks and should be risk assessed to ensure preventative and protective measures are suitable and sufficient.

F - Fires in fields can be prevented. Remember to consider weather conditions, water supplies and fire breaks.

I - Incident location – it's essential that we know how to find you. Ensure that you have clear signage from the road and be ready to guide the fire service to the correct location.

E - Extra resources - having a slurry tank of water and chain harrow can make all the difference when fighting the fire.

L - Leave it to the fire service - don't try to tackle the fire yourself. Get out, stay out, call 999.

D - Don't take risks – ensure that you have an escape plan in place and know how to protect your livestock and machinery.





What you are required by to do by law

The Regulatory Reform Fire Safety Order 2005 is the fire safety legislation that applies to all farm buildings where people work, including packing sheds, milking parlours, barns, holiday lets and farm houses used for providing bed and breakfast.

If you are a business owner, you are required to carry out a risk assessment. If you employ 5 or more people you are required by law to record the significant findings.

Fire safety is your responsibility, and if you don't obey the law you could lose your business or be prosecuted

If you need more information about fire safety or regulations contact Shropshire Fire and Rescue Service Protection & Prevention Department on: **01743 260200** or email **BFSINTELPF@shropshirefire.gov.uk**

To find out more about fire safety risk assessments and what you have to do for each of the steps on the next page, visit the following websites:

Animal premises and stables

www.communities.gov.uk/publications/fire/firesafetyanimal

Sleeping accommodation

www.communities.gov.uk/publications/fire/firesafetyrisk4

NFU Risk Assessment & Guidance

www.nfumutual.co.uk/globalassets/business/rms/rms-business-section/risk-assessment.pdf



There are 5 steps to completing a fire safety risk assessment

Step 1 - Identify any hazards

- Sources of ignition - these could include things like welding or grinding equipment, damp hay, naked flames or munitions
- Sources of fuel - this is anything that could burn, such as petrol
- Dangerous Substances - these could be chemicals, fertilisers etc.

Step 2 - Identify any people at risk

- Anyone near your farm buildings
- People who work for you or who are on your premises
- Young people
- Firefighters and other emergency service personnel
- Holidaymakers.

Step 3 - Evaluate, remove, reduce and protect from risk

- Evaluate the risk of fire occurring
- Evaluate the risk to people from fire
- Remove or reduce any fire hazards
- Remove or reduce any risks to people - this could be by installing smoke and fire alarms, firefighting equipment, escape routes, lighting, signs or notices or carrying out maintenance on electrics and equipment.

Step 4 - Record, plan, inform, instruct and train

- Record any significant findings and the action you have taken, even if you're not required by law
- Prepare an emergency plan
- Inform and instruct anyone who might be affected
- Provide training.

Step 5 - Review

- Review your risk assessment on a regular basis and make changes if you need to.

Risk assessment and arson reduction checklist

Signal Crime

- | | Yes | No |
|---|----------------------------------|-----------------------|
| 1. Is there a history of vandalism or fire setting in the area around the farm? | <input checked="" type="radio"/> | <input type="radio"/> |
| 2. Is trespassing on the property a problem? | <input checked="" type="radio"/> | <input type="radio"/> |

Storage

- | | | |
|---|-----------------------|----------------------------------|
| 1. Are hay and straw removed from the field as soon as possible after harvesting? | <input type="radio"/> | <input checked="" type="radio"/> |
| 2. Are hay and straw stored separately from other farm buildings particularly those housing fuels, agrochemicals and machinery? | <input type="radio"/> | <input checked="" type="radio"/> |
| 3. Are hay and straw stored in reasonable sized stacks and spaced at least 10 metres apart? | <input type="radio"/> | <input checked="" type="radio"/> |
| 4. Are hay and straw stored separately from livestock housing? | <input type="radio"/> | <input checked="" type="radio"/> |
| 5. Is security lighting provided? | <input type="radio"/> | <input checked="" type="radio"/> |
| 6. Are the farm buildings fitted with a fully operational intruder alarm with a monitored link to an alarm receiving station? | <input type="radio"/> | <input checked="" type="radio"/> |
| 7. Is all refuse disposed of safely and on a regular basis? | <input type="radio"/> | <input checked="" type="radio"/> |
| 8. Are gates and perimeter fencing fully secure and fit for purpose? | <input type="radio"/> | <input checked="" type="radio"/> |

Fire Safety Management

- | | | |
|---|-----------------------|----------------------------------|
| 1. Are all unoccupied areas regularly checked to ensure they are safe and secure with no unnecessary accumulation of combustible materials? | <input type="radio"/> | <input checked="" type="radio"/> |
|---|-----------------------|----------------------------------|

If you have ticked any of the shaded circles, these areas will require control measures to be put in place.

The outcomes of this arson checklist should be included in the overall fire risk assessment and action plan for the farm.

Dangerous substances

Under Chemical Regulations you must tell people on your farm, including workers, firefighters and other emergency services personnel, if there is a possibility that dangerous substances are involved in a fire.

They will need to know the location of;

- Bottled gas i.e acetylene and LPG, and bulk diesel or petrol
- Slurry and any other animal waste
- Guns and munitions
- Asbestos in the materials the buildings are made of
- You should be able to provide material safety data sheets for all chemicals used on your farm
- Ammonium nitrate fertilisers, sodium chlorates, pesticides or any other agrochemicals and poisons.
- If more than 25 tonnes of any dangerous substances are stored you must provide the relevant hazard warning symbol, for more details visit <http://books.hse.gov.uk/hse/public/saleproduct>.

Burning waste in the open

- Shropshire Fire and Rescue Service should be notified of any Burning of waste in the open prior to the commencement on 01743 260290.
- If you are planning to burn waste in the open and you are the person responsible for the fire, you may be committing an offence if you do not have an environmental permit. You may also receive an unlimited fine or imprisoned for up to 5 years
- All waste activities you carry out must not risk harming human health or the Environment. These activities must not risk waste, air, soil, plants and/or animals. Cause a nuisance through noise or odour or adversely affect the countryside/places of special interest.
- Please visit the Environmental Agency website at <https://www.gov.uk/guidance/d7-waste-exemption-burning-waste-in-the-open> for further guidance.



Combine and tractor fires - fire prevention tips

Keep it clean: Clean the engine compartment and exhaust at least once a day; in periods of heavier operation, more frequent cleaning may be needed. Use compressed air to clean out the chaff and dust and a high-pressure washer to clean caked-on grease, oil and hydraulic fluids.

Be on the lookout: Conduct an inspection each day before beginning combining. During this inspection, pay attention to hoses, fuel lines, belts, fittings, grommets and wiring. If any are leaking, cracked or otherwise damaged, replace the part. Stop to investigate hot running engines or bearings.

Electrical safety: Don't bypass overload protection such as fuses and circuit breakers. Frequently inspect wiring and switches for any unsafe conditions in the combine's electrical system and reduce sources for fire ignition. Consider a retro fit ISOBUS adaptor for older vehicles. Check battery terminals are tightened.

Proper maintenance: Since vibration and friction can create heat and potential ignition sources, take steps to minimize these exposures. Follow manufacturers' recommended maintenance and lubrication schedules.

Keep your cool: If the cooling system is not properly maintained, the engine can run hot and increase the risk of ignition. Cleaning crop residue from this system will help ensure proper operation.

Fueling safety: Because fuel sources for combine fires can be crop residue, oil build up or an electrical spark, a multipurpose extinguisher is required to meet type A (crop residue), type B (fuel oil), and type C (electrical) fires. Ensure it is maintained. Clean any fuel spills before starting the engine.



Harvesting - Crop fires and hot weather

Remember the 3 P's to help reduce fires

Plan

- Have an emergency plan in place for harvest times, including fire risks & ensure a Fire Risk Assessment (FRA) is in place.
- Use What3Words app to record locations of each field gateway prior to harvesting in the event of no GPS signal.
- Consider creating a ring round system with neighbouring farms to share the standby equipment in the event of fire.

Prepare

- Ensure all workers know the emergency plan and FRA.
- Have a leaf blower or other air compressor in the cab. At regular intervals throughout the day take a break and blow off chaff and debris.
- Ensure every vehicle has appropriate levels of fire extinguishers, maintained and within service dates to tackle any initial small cab fire, if safe to do so. If it isn't extinguished within 20 -30 seconds, get out, stay out and call the Fire Service.
- Ensure all machinery operators have a fully charged mobile phone kept on their person and not left within the cab

Prevent

- Harvesting and baling can create sparks in a field. If temperatures are exceptionally high, consider altering harvest hours to minimise risks.
- In stony fields, where the risk of sparks is high, where necessary, raise the combine header height slightly.
- If needed, reduce the speed of the combine.
- Have a tractor with a cultivator attached available to create an urgent fire break around the machinery or wider crop protection.
- Have a full water bowser/slurry tank on site to allow fire services to access additional water sources on arrival.
- If you have a vac tank or similar with rain gun attachment, can crops be sprayed near a potential fire break or hedgerow to slow fire and field spread (When fire service is on site, as per their direction)
- Do not allow Tractors to undertake DPF regeneration while in the field or when operating near barns where hay is stacked. The discharge of high temperature particles can easily ignite crops. If it has an isolation switch – turn it off and then allow regeneration in a low-risk location.



Hay fires generally occur within six weeks of baling

Heating occurs in all hay above 15 percent moisture, but generally it peaks at 125 to 130 degrees F, within three to seven days, with minimal risk of combustion or forage quality losses.

Temperature within a stack then declines to safe levels in the next 15 to 60 days, depending on bale and stack density, ambient temperature and humidity, and rainfall absorbed by the hay.

Hay storage and spontaneous combustion

- Wet hay is more likely to lead to a spontaneous combustion fire than dry hay.
- If hay is put into a barn or stack when it has more than about 22 percent moisture, not only does the hay lose forage quality, but it has an increased risk of spontaneous combustion.
- High moisture haystacks can have chemical reactions that build heat. Hay insulates, so the larger the haystack, the less cooling there is to offset the heat.
- When the internal temperature of hay rises above 130 degrees Fahrenheit (55 degrees C), a chemical reaction begins to produce flammable gas that can ignite if the temperature goes high enough.





Reduce the risk of fire when storing hay within agricultural structures

- Small, rectangular bales should not exceed 18 to 22 percent moisture.
- Large round or rectangular bales should not exceed 16 to 18 percent moisture for safe storage.
- As part of your Fire Risk Assessment (FRA), consider the type, construction, and location of any barn to be used for storage. Is it enclosed, open to one side? Then consider what measures can be utilised for early identification of risk and minimising water and fire damage.
- Consider moisture meter/probes prior to baling and storage. (Up to £500)
- Consider a hay monitoring system that regularly assesses temperature within a stack (£600 upwards, dependent on size and number of required probes deemed necessary from your FRA)
- Thermal imaging heat camera will quickly identify excessive heat (£150- £1000, but is movable and able to monitor multiple stacks)
- Does your phone have a downloadable app that provides thermal imaging? Micro USB adaptors are available for some phones providing this facility or a rugged forward-facing infrared phone (£400)
- Can a sprinkler system be justified?
- Usually only 1 or 2 sprinklers activate when affected directly above a fire source, delivering a controlled quantity of water and specific field of distance.
- Sprinklers therefore target a specific area of fire and not necessarily the whole storage facility, possibly preventing greater water damage.



What do you do if you suspect that your hay is heating?

Watch for the following temperatures:

- **150 degrees F** (65 degrees C) is the beginning of the danger zone. After this point, check temperature daily.
- **160 degrees F** (70 degrees C) is dangerous. Measure temperature every four hours and inspect the stack.
- **175 degrees F** (80 degrees C), call the fire service. Meanwhile, dismantle and remove the hay from the barn or the specific heated stack, then wet down.
- **185 degrees F** (85 degrees C) hot spots and pockets may be expected. Flames will likely develop when heating hay comes into contact with the air.
- **212 degrees F** (100 degrees C) is critical. Temperature rises rapidly above this point and hay will almost certainly ignite.

Remember: Heat monitoring equipment can be used to support your management of risk, together with other factors.

However, do not rely on monitoring equipment to be 100% accurate and if in any doubt, contact the Fire Service to discuss further.

Considerations when choosing where to stack bales

- Select a site away from any potential fire hazards and sources of ignition.
- Provide sufficient space to allow tractors and other vehicles room to manoeuvre.
- Store recently used tractors away from stacks or in a different building.
- If close to a fence or boundary, assess whether the stack needs to be fenced off.
- If there is public access to the field via a footpath etc, consider providing signage to warn people to keep away.
- Do not build stacks over underground services such as gas pipes or water mains and fire hydrants.
- Do not work or build a stack under or within 10 metres of overhead power lines.

Fire precautions

- Multiple stacks should be sighted at least 10 metres away from each other and any nearby buildings to prevent fire spread and allow safe manoeuvring between, however you may wish to consult your insurance company and local authority for advice.
- Where multiple stacks are sited together, they should, if possible, be in line with the prevailing wind.
- Avoid siting stacks near public access and roads as these are vulnerable to fires from discarded cigarettes, littered glass and deliberate arson.
- Ensure combustible materials such as fertiliser, fuel and vehicles are stored well away.
- Keep bale elevator engines free of straw and other debris to avoid causing a fire.
- Do not allow smoking near stacks.
- Be aware of spontaneous combustion.
- Do not carry out any works near a stack that could cause a fire.
- Do not allow children to play on or near stacks.



Stable Fire Safety - Guidance and advice

- Have firefighting equipment on the stable yard and keep it regularly maintained. Ensure your hose reaches the full length of your stable yard. It may help to reduce fire spread for evacuation purposes. Remember to only use firefighting equipment if safe to do so.
- Ensure all combustible materials are stored well away from the stables including, bedding, feed, hay, straw and husbandry items like rugs etc.
- Ensure gangways and escape routes are kept clear of hay, straw, haynets and rugs. For internal barns always have an alternative escape route, ideally one at each end.
- Ensure the muck heap is located downwind at least 15 metres from your stables.
- Park vehicles well away from buildings in a secure area.
- Designate a smoking area away from the stables or preferably do not allow smoking at all.
- Ensure your electrics are tested at least once a year by a qualified electrician.
- Install robust security measures to prevent theft and arson.
- Switch off tack room/communal area heaters when not in use. Do not leave them on overnight unless they are designed to do so.
- Never stable animals in barns alongside hay, straw and vehicles.
- Fit fire detection in stables if necessary. Hard wired optical or heat detectors are best, remote sounders are available if the alarm will distress the horses.
- Stables of brick construction with tiled roofs behave better in a fire situation. Wood and felt/corrugated roofing burns and deforms quickly. These may be cheaper and water resistant but they do not behave well in fire, often melting and causing burns to the animals. Nylon rugs will melt and burn the horse's skin, consider using old jute style rugs.



Fire Evacuation Procedures

- Signpost or number your evacuation paddock gates. Enter this onto the fire plan in your red fire box. If needed, specify which stables need to be evacuated in to which paddock.
- Always number your stables and have head collars available outside in case of evacuation.
- In case of Stallions, injured animals or broodmares etc. identify their stable number and indicate on the evacuation map which paddocks/ areas these need to be evacuated to.
- Always start with the horses closest to the fire. Close the stable door after you have removed the horse, loose horses will return to a burning stable!
- Always try to place horses in a secure area. Loose horses are dangerous and could hamper firefighters efforts to access and extinguish the fire.

Fire Boxes

Consider installing a fire box at the entrance to your property, this should contain information such as:



Location of water supplies

Map of the land and fire plan

Livestock on site

Hazardous materials storage



What to do if you offer sleeping accommodation

Managers and landowners with premises providing sleeping accommodation e.g holiday lets, need to comply with fire safety law and carry out a fire risk assessment as outlined on page 5.

A specific fire risk assessment must be completed prior to occupation of any sleeping accommodation provided and reviewed annually or when any changes are made on site. Fire extinguishers should be clearly marked, easily accessible and if necessary protected from the elements including frost.

In communal areas fire exits and routes should be clearly defined and free of obstacles and be able to be opened without the use of a key. Fire assembly points should be positioned safely away from carriageways and clearly marked.

Notices should be displayed in each unit and any communal areas, ideally in the residents' first language or using pictograms indicating: action to take in the event of an emergency; emergency numbers; site manager contact details; full address of the premises and OS map reference.

An Emergency Action Plan must be prepared and made available to residents. The action plan must be communicated as part of a worker's induction.

In each unit/caravan either hard wired or, as a minimum, tamper proof lithium battery smoke detectors should be fixed securely in position to prevent unauthorised removal. Smoke detectors



should be fitted near sleeping areas (and away from cooking areas where heat alarms should be fitted to avoid false alarms leading to complacency). You may need to put in more than one detector in larger caravans.

Alarms and detectors should be tested weekly, with records of inspection maintained on site for inspection.

Liquid Petroleum Gas cylinders must be connected to the unit in an upright position and stand on a hard surface and/or be chained.

All windows which can be opened should not be fitted with bars or grills so that they can be used in the event of an emergency. In units, any secondary exit via a window should be risk assessed to include the drop from the window and exterior surface.

Furniture and furnishings supplied in the accommodation must comply with all relevant legislation (e.g. Furniture and Furnishings (Fire) (Safety) Regulations 1988).

Adequate external lighting should be provided for residents to see their way at night. This may be achieved in small caravans or accommodation units via a dedicated handheld torch.

If you have tents or yurts on your property, then please visit the following website for more information and guidance:

www.nationalfirechiefs.org.uk/Tented-structures





What to do if a fire breaks out



Call the fire service immediately on 999

Tell the operator:

- Where the fire is - give the full postal address including the postcode, local landmarks, Ordnance Survey 6 figure grid reference.
- Consider using what3words for precise location, when in a particularly remote or rural location.
- Exactly what is involved - especially any chemicals that are involved or likely to become involved in the fire.
- If the access to the fire site will be difficult for the fire engines.
- If there will be problems accessing water supplies on the fire site.

- Never attempt to fight the fire unless it is safe to do so.
- If possible, send someone to the farm entrance to direct the Fire and Rescue Service to the fire. Ideally, they should have a torch and be wearing high visibility clothing so they are easy to see.
- Clear access routes to the fire site for the fire engines.
- Move livestock if necessary or be prepared to move them in case the fire spreads.
- Make yourself known to the Fire Crew on arrival and answer any questions they may have.
- Have a clear and well-rehearsed evacuation plan for all farm buildings.





Give emergency services your exact location with what3words

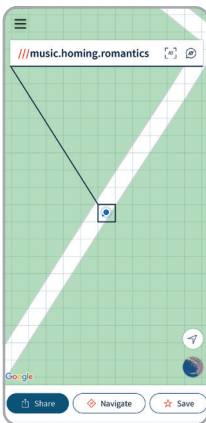


what3words has given every 3 metre square a unique identifier made of 3 words.

If you're at the scene of an incident, use the free what3words app to find the 3 words for your location, then give them to the emergency services over the phone.



How to give emergency services your what3words location



1. Open the app

Wait a few seconds for the blue dot to settle in one place.

For a more accurate GPS location, you should be outdoors.

2. Locate yourself

Tap  on iPhone or  on Android.

The 3 words for your location will display at the top of the screen.



3. Give the 3 words

Read the what3words location over the phone to the emergency services.

They'll know exactly where to find you.



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