

Permanent Agricultural risk review report

Business Sector Risk Review Reports are created for each and every occupancy category held within the FPA/ RISCAuthority Large Loss Fire database where sufficient records exist for meaningful analysis and are updated annually. They are designed to highlight the loss history in each business sector to help inform insurance and risk control choices, and provide brief bespoke best-practice guidance.

This data is best appreciated in association with local information on F&RS response, AFA policy, and firefighting water availability data which is available to RISCAuthority members via the website (www.RISCAuthority.co.uk). The data presented here spans the two years January 2012 to December 2013; the complete database and analytical tools may be accessed by members via the RISCAuthority website.

Barns

Sub category



Permanent Agricultural fires account for **3.2%** of all large loss fires.

Fires involving **Barns** account for **1.6%** of all large loss fires and **49.4%** of all **Permanent Agricultural** fires.

Causation	Accidental	Deliberate	Unknown
Permanent Agricultural	51%	9%	40%
Barns	36%	11%	52%

Time of fire	Midnight - 6am	6am - midday	Midday - 6pm	6pm - midnight
Permanent Agricultural	26%	19%	31%	24%
Barns	35%	12%	30%	23%

Impedances	Access	Acetylene	Inadequate water supply	Resources
Permanent Agricultural	28%	11%	56%	6%
Barns	20%	10%	60%	10%

17 Permanent Agricultural fires of **89** had impedances, **1** of these had more than one impedance.

9 Barns fires of **44** had impedances, **1** of these had more than one impedance.

Cost of fire

Permanent Agricultural fires account for **1%** of all large loss financial loss, with a mean average cost of **£325,659** per fire.

Barns fires account for **39%** of all **Permanent Agricultural** loss, with a mean average cost of **£273,217** per fire.

Insurance component	Material damage	Business interruption	Contents	Resources	Machine and plant	Stock	Other
Permanent Agricultural	63%	13%	3%	0%	6%	5%	11%
Barns	63%	10%	3%	0%	2%	7%	14%

These statistics are based upon information supplied by loss adjusters to the FPA on a voluntary basis and not all insurers conducting business in the UK contribute to this dataset. They represent only sums paid out where the total loss is in excess of £100K and are deficient of losses under £100K, deductibles, under-insurance, uninsured, self-insured and captively insured components, which may be significant. In a year, total losses captured typically account for 50% of the ABI declared annual fire loss figure - which is similarly deficient of the same components (except the £100K threshold).

FPA BUSINESS SECTOR RISK REVIEW REPORT FOR PERMANENT AGRICULTURE – BARNs

Fire safety legislation

Fire risk assessments should be undertaken for agricultural buildings such as barns which form a workplace in compliance with the Regulatory Reform (Fire Safety) Regulations 2005 (or equivalent legislation in Scotland and Northern Ireland). In some instances an assessment may also need to be undertaken in accordance with the Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR).

Fire hazards

There are numerous fire hazards associated with barns; these include:

- Deliberate fire setting.
- Sparks produced as a result of welding and cutting and also from grinding discs and other hot work processes.
- Heating from friction as a result of the use of machinery or of hand tools for processes such as drilling and sanding.
- Electrical fire hazards from poorly maintained generators, equipment and installations.
- Parked tractors and farm machinery.
- Stored crops, hay, straw and animal feed.
- Storage of fuel for engines and generators.
- Stocks of agricultural fertilisers and chemicals.
- Accumulations of combustible and flammable waste materials.
- Inadequate water supplies for firefighting.

Risk control recommendations

The following risk mitigation measures should be considered to eliminate or reduce the risk of fires involving barns and similar buildings:

- Give careful consideration to the likelihood of deliberate fire raising at the time of the fire risk assessment especially if there are public paths nearby. Suitable security measures should be implemented to reduce the incidence of fire setting; these may include installing security lighting and introducing a high quality CCTV system to monitor the site.
- Review the fire risk assessment periodically, whenever there are significant changes to: the processes to be carried out in the barn, the nature of the crops or combustible materials to be stored there.
- Identify appropriate hazard zones in the DSEAR assessment (where undertaken) and train staff in the implications of these in the context of the materials being handled and the operations being carried out.
- Plan a strategy for the evacuation of animals where appropriate.
- Avoid hot work wherever possible. Where there is no practicable alternative to the use of acetylene, minimise the time that acetylene cylinders are held on site.
- Wherever practicable carry out hot work processes in a purpose designed area; control work undertaken outside of this by a hot work permit system.

- Engage competent engineers to maintain plant and equipment in accordance with the manufacturers' instructions. Keep suitable records of maintenance and servicing.
- Earth all electrical circuits in accordance with the requirements of BS 7671. The bonding and earthing should be subject to a programme of inspection and testing as determined by a risk assessment. The results should be recorded.
- Ensure that electrical installations are designed, installed and periodically tested by a competent electrician in accordance with the current edition of BS 7671 (the IET Wiring Regulations). Inspections should be carried out on a risk assessed basis as recommended in the Periodic Inspection Report.
- Provide power tools and other items of portable electrical equipment that are suitable for outside use where necessary and arrange for them to be inspected and tested at least in accordance with HS(G) 107 and/ or the IET *Code of practice for in-service inspection and testing of electrical equipment*. A risk assessment should be used to determine the actual programme of inspection and testing.
- Replace highly flammable and flammable solvents with non-flammable alternatives wherever possible. Where this is not practicable replace low flash point solvents with those having a higher flashpoint.
- Store cans and drums containing flammable solvents in accordance with RISC Authority Recommendations RC 20-2.
- Store all gas cylinders in suitably signed facilities designed for this purpose in accordance with RISC Authority Recommendations RC8.
- Store hazardous materials and combustible waste at least 10m from the barn and from outdoor plant or equipment.
- Where herbicides, pesticides and other farm chemicals are stored observe the advice set out in RISC Authority Recommendations RC10.
- Cut down undergrowth around the building regularly; do not treat it with proprietary chlorate based weedkillers.
- Establish a means of giving warning of fire. Certain buildings, by their size and nature, may require a formal system incorporating automatic detectors and call points designed to an appropriate category as defined in BS 5839-1. On other sites the fire risk assessment may indicate that whistles, klaxons or air horns may be suitable provided they are clearly audible above background noises in all areas and can be readily identified as being a fire alarm
- Where appropriate, and following a risk assessment, consider installing an automatic fire suppression system designed in accordance with BS EN 12845 or other recognised standard to protect the facility.
- Ensure that water supplies in the area are adequate for firefighting purposes; liaise with the local fire and rescue service where appropriate.

- Ensure that access to the building is readily available for the fire and rescue service.
- Have an effective emergency plan in place to ensure the resilience of the business. One way of approaching this is to complete the ROBUST business continuity and incident management planning software available free from <https://robust.riscauthority.co.uk/>

Further information

1. Regulatory Reform (Fire Safety) Order 2005, SI 2005 No 1541, TSO.
2. The Fire (Scotland) Act 2005, asp 5, TSO.
3. Fire Safety (Scotland) Regulations 2006, Scottish SI 2006 No 456, TSO.
4. Fire and Rescue Services (Northern Ireland) Order 2006, SI 2006 No 1254 (NI9), TSO.
5. Fire Safety Regulations (Northern Ireland) 2010, SI 2010 No 325 (NI), TSO.
6. Dangerous Substances and Explosive Atmospheres Regulations (DSEAR), 2002, SI 2002 No 2776, TSO.
7. RC7 *Recommendations for hot work*, 2012, FPA.
8. RC8 *Recommendations for the storage, use and handling of common industrial gases in cylinders including LPG*, 2012, FPA.
9. RC10 *Fire safety in agricultural and horticultural premises*, 2011, FPA.
10. RC20 *Recommendations for fire safety in the storage and use of highly flammable and flammable liquids: Part 1: General principles*, 2006, FPA.
11. RC20 *Recommendations for fire safety in the storage and use of highly flammable and flammable liquids: Part 2: Storage in drums, cans and containers other than external fixed tanks*, 2007, FPA.
12. RC49 *Recommendations for reducing business interruption, Part 1: Acetylene cylinders involved in fires*, 2007, FPA.
13. *Business resilience: A guide to protecting your business and its people*, 2005, FPA.
14. The ROBUST software (Resilient Business Software Toolkit) may be found at <https://robust.riscauthority.co.uk>
15. BS 5839-1: *Fire detection and fire alarm systems for buildings: Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises*, 2013, BSI.
16. *LPC Rules for automatic sprinkler installations incorporating BS EN 12845: (Fixed firefighting systems. Automatic sprinkler systems. Design, installation and maintenance, BSI)*, 2009, FPA.
17. *Fire safety risk assessment: Animal premises and stables*, 2006, Department for Communities and Local Government.

Case histories

1. Arsonists are believed to have started a fire which has gutted a large barn. More than 30 firefighters were called to the blaze at 04:00. A spokesman from the fire and rescue service described the blaze as 'quite dramatic'. He said it was believed the fire had been started deliberately in a pile of tyres outside the barn. No-one was injured.
2. Police have said that six horses died in a barn fire. About 25 firefighters tackled the blaze on Friday night which also destroyed about 2,000 bales of hay. Police are working with the fire and rescue service to investigate the cause of the fire.
3. Local residents were warned to stay indoors and keep their windows and doors shut after firefighters discovered asbestos in the roof of a large barn during a fire on Monday. About 35 firefighters dealt with the blaze which demolished the barn.
4. A barn fire which killed a pony is believed to have been started deliberately, the fire service says. The blaze ripped through the 30m by 50m structure causing more than £200,000 worth of damage. Fire crews were alerted at 22:30 and remained at the scene well into the next afternoon. Four other ponies were rescued by the farmer but up to 500 tonnes of hay, straw and farm machinery were destroyed.