RISK MANAGEMENT PROGRAMME FOR PREVENTION OF FIRES ON FARMS

Every year in the UK 1,700 farm buildings and 66,000 areas of grassland are destroyed by fire. There are a number of common causes including spontaneous combustion within stored straw or hay, particularly where baled when too wet or green, machinery striking flints and stones and working machinery during harvesting. About half farm fires are started deliberately, often as an act of mindless vandalism, and a serious fire can affect the financial stability of even the most well run business.

Farms are particularly vulnerable to arson as their isolated locations, open boundaries and readily ignitable hay and straw stacks make them an easy target. Whilst arson attacks on farms may be difficult to eliminate a number of simple precautions can substantially reduce the risk.

The following information is provided for guidance purposes only:

1) GENERAL RISK ASSESSMENT

A quick tour of the farm should identify areas where an arsonist could strike and may reveal the need to

a) provide, repair or replace damaged fencing or gates
b) install intruder sensors and security lighting
c) maintain the security of outbuildings by ensuring they are locked when not in use
d) replace or re-site security and warning notices
e) lock access gates when not in use
f) prepare a fire routine and action plan and ensure all employees know what to do
g) provide suitable and appropriate fire-fighting equipment that can be accessed at all times.

2) FIRE IN STORED HAY AND STRAW

To help reduce the risk of fire damage to hay and straw and surrounding property store it

a) separately (at least 10 metres) from other buildings, particularly those housing fuel, agrochemicals and machinery
b) in stacks of reasonable size, spaced at least 10 metres apart
c) away from areas commonly accessed by the public such as close to footpaths
d) separately from livestock housing other than where used as bedding

In addition

a) if stored in buildings only use those of non-combustible construction
b) store petrol, diesel and other fuel in secure areas and lock storage tank outlets
c) keep fertilizers and pesticides under lock and key
d) dispose of refuse safely and regularly
e) carry out electrical safety checks regularly in all areas where straw or hay are stored
f) for further information on safe stacking of bales refer to ‘Safe working with bales in agriculture’ INDG 125 available from www.hse.gov.uk

3) FIRES IN GRASSLAND AND STANDING CROPS

Many fires occur in the spring and late summer due to carelessness by passers by or trespassers. It is difficult to maintain secure boundaries when land adjoins public roads and paths but precautions can reduce the spread of fire whilst harvesting which is particularly important when undertaken near buildings or expensive farm machinery

a) maintain farm machinery chaff free, serviced and in good condition
b) have a tractor with associated machinery available to cut a fire break if necessary
c) keep a full water bowser or tank in close proximity when harvesting
d) regularly check and maintain open water supplies for fire fighting
e) remind employees to be careful with cigarettes and matches while harvesting.

4) SPONTANEOUS COMBUSTION

Hay that is too wet will go through a curing process (sometimes referred to as a sweat) in storage where heat is produced. To reduce the risk of spontaneous combustion consideration should be given to the following:

a) heating can occur in hay unless it contains under 16-18% moisture. Normally, a moisture content considered safe for baling is 20% or less, but even this can result in some heating and a 5-10% loss of dry matter during storage
b) bale density and mass have an effect on heating. With small rectangular bales, hay can generally be safely baled at 18-20% moisture. With large round or rectangular bales hay moisture should generally be no higher than 16-18%
c) spontaneous combustion usually begins within two weeks of hay being placed in storage but is possible for two months. Check for temperature rises within two days of storage and monitor daily for at least 10-14 days, particularly where the hay was a little too wet or green when it went into storage.

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Dependent upon the storage conditions, and initial moisture content of the hay, it may be necessary to continue monitoring for up to two months

d) spontaneous combustion usually occurs in the middle or lower bales in the stack or in the middle of large round bales. These areas are difficult to reach but the temperature can be ascertained by driving a pipe or hollow probe, with a sharpened plug, deep into the stack or centre of large bales and dropping in a thermometer tied to a string for 15 minutes. If the temperature is
   i) up to 160°F, read and record temperatures at least daily to monitor the temperature trend
   ii) 160-180° consider moving some hay out so it can dry and cool
   iii) 180-190° alert the Fire and Rescue Service to the situation and stop ventilation of rows or stacks to the extent possible to reduce the air supply
   iv) above 210°, call the Fire and Rescue Service immediately. Unless water and fire fighting equipment are available do not attempt to move hay at that temperature as it may ignite when exposed to a greater air supply as it is moved

e) avoid storage of wet hay but, where it is necessary, reduce the likelihood of its heating. Where small rectangular bales are manually stacked, build air channels to the outside of the stack as each layer of bales is placed. Stack the bales on their narrow side ("on edge"), cut side (edge) up, rather than flat. Bales cannot be stacked as tightly on their side as those stacked flat thus enabling some air movement through the stack. Wetter, greener, heavier bales to be on the outside of the stack where they have greater exposure to air, rather than in the middle. Very wet or green heavy bales not to be placed in the stack

f) inspect stacks regularly taking into account recent weather conditions (particularly after heavy rainfall) and the location of stacks (especially if near public footpaths).

5) WORKSHOP FIRES

To help reduce the risks of fires in farm workshops

a) undertake welding and grinding in clear areas away from combustible materials

b) keep a suitable portable fire extinguishing device in the workshop

c) keep the volume of highly flammable paints and thinners stored in the premises to a minimum and do not exceed 50L unless in a properly designed storage facility. Cans to have their lids secured when not in use and, other than sufficient quantities for immediate use, be stored in an enclosed metal flammable storage bin or container

d) remove LPG, paraffin and open bar radiant heaters, together with any cylinders, as they are unsuitable forms of heating due to their potential to cause fires. Fixed electric infrared heaters (either wall mounted or roof/ ceiling suspended), or oil/gas-fired heat exchangers are recommended. However, if the portable heaters are to be used then comply with the following safety arrangements
   i) securely bolt or otherwise fix the heater to a concrete floor and securely chain any LPG cylinders to the wall or other permanent fixture
   ii) erect a metal barrier or cage around the heater extending at least one metre from the heater nozzle
   iii) keep combustible materials well clear of the heater nozzle
   iv) do not use the heater when the workshop is unattended.

6) IN THE EVENT OF FIRE

a) Call the Fire and Rescue Service without delay.

b) Only attempt to fight the fire if it is safe to do so.

c) Send someone to meet and direct the Fire and Rescue Service to the fire.

d) Prepare to evacuate livestock if the fire spreads.

e) Prepare to use farm machinery to assist the Fire and Rescue Service.

f) Ensure the farm entrance is clearly signed and access kept clear to allow Fire and Rescue Service access.