When all is safely gathered in

The sun shone, your grass dried and was soon transformed into the most fragrant hay. Now you have to store it safely. Organic farmer **Christine Page** has plenty of tips as well as warnings, as green hay can spark a barn fire

Hay stacks are notoriously dangerous, with both fires and collapses causing injury and loss every year. Despite the rush on the final day of hay making and the eagerness to get the bales lugged into the dry safety of the barn, great care must be taken to stack hay safely.

Those with any experience of building traditional dry stone walls will have a basic understanding of the techniques used to stack square small-bale hay. Each layer needs to be tied in, with bales stacked in alternating directions to hold the stack tight and, as the stack gets taller, each layer is stepped back slightly so that the weight of the hay is always directed inwards towards the stack to prevent a collapse.

Setting the baler to bale tightly will produce bales that are more dense and therefore more stable, making them easier and safer to stack. It should be noted that contractors paid by the bale might be incentivised to bale loosely, resulting in more but lighter-weight, softer bales. These soft bales fall apart very easily and are extremely difficult to stack safely.

Round bale hay stacks can be very dangerous, as these bales can fall like skittles if not stacked well or

nudged by accident with a machine. It is safest to place round bales on their round (side). For example: four in a row on the bottom layer, with three bales on the next layer, each laying firmly in the gully created by those below, and then two on top, forming a pyramid shape.

For the inexperienced farmer, keeping to a maximum of three bales high is the safest option, and be sure never to climb onto round bales in a stack.

Assuming that the stack has been built well, the safest way to use hay is in reverse stacking order: the last bale on is the first bale off.

PREVENTING A BARN FIRE

Despite the euphoria of seeing a barn full of sweet-smelling hay, the work is not quite done. It is important to check freshly-baled, stored hay daily to ensure that it doesn't start to heat up. Barn fires are rare, but it isn't worth the risk, particularly if the decision to bale was borderline due to the weather closing in or if there was the odd greener patch under trees or tall hedges around the edges of the field (which really ought not to have been baled up).

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Any greens in a bale will provide moisture, which in an aerobic environment will provide microbial life with the perfect conditions to start decomposing the bale, creating heat and flammable gases. It only takes one bale to ignite a barn fire.

Using a 1.5m long composting probe, the temperature of the hay should be taken daily for several weeks in several different places in the hay stack. The highest percentage of barn fires happen two weeks after baling, but they can happen up to a month later. Ideally the internal temperature of hay bales should stay at ambient temperature and not heat at all. However, some minimal heating might be seen, 5°C or even 10°C above ambient temperature.

PICTURES: CHRISTINE PAGE/GETTY/JULIE HARDING

Small, square bales need to be stacked in alternating directions to hold the stack tight; You can take the temperature of the hay using a composting thermometer

Hay will spontaneously combust at 55°C and once over 40°C can heat up very rapidly indeed. If hay is found to be heating past 40°C, it should be removed from the barn immediately and the bales placed apart in a field until they have cooled, but only if it is safe to do so. If not, a call to the fire brigade might be the next decision.

Many farmers choose to leave round bale hay in the field for at least a month after baling for precisely this reason. Some quality is lost around the outside of the, but it is better to be safe than sorry if there is any doubt that the hay may heat up.

DO IT YOURSELF OR USE A CONTRACTOR?

It is quite an investment to acquire all the equipment needed to make hay yourself. At the very minimum a mower, hay-bob (that can both ted and row-up) and a baler are needed. Knowledge of the machinery, to ensure that you are buying something in good working order, is also essential. Even more importantly, being able to fix a breakdown under time pressure is critical. Shear bolts are intended to break to protect vital working parts, but they break for a reason. A speedy diagnosis of the problem and being able to resolve it to ensure a quick restart might mean the difference between bringing in a perfect crop of hay or a forlorn field covered in rows of soggy, rotting grass if the window of opportunity is lost.

The best solution for many smallholders is to look over their hedge to see who might be making hay around them. Many farmers will provide a local contracting service and a neighbouring farmer should be the first port of call. He might offer to make and bale hay, or possibly be able to do the mowing and tedding, and then call in a contractor to rake up and bale.

The National Association of Agricultural Contractors (NAAC) gives average prices on its website for mowing, tedding, raking and baling various sizes of bales. It is important to note, however, that these are country averages and prices will vary considerably depending on location. Price will also increase if it is a very small area to mow, or an hourly fee might be added on top of the area or per bale rate for a contractor bringing their own equipment.

Horses enjoy hay, but there is a lot to think about before it reaches them, including how to store it safely

The 2020 NAAC guide gives mowing at around £12 per acre, tedding and raking £7 per acre, and baling small bales at 74p each, or larger round bales at £3.30 each. In a good year by mid-July an acre might harvest 1.5 tonnes of hay, the equivalent of 100 small bales or six to eight large round bales. It becomes immediately obvious that it is costly to have the convenience of small-bale hay.

An alternative is to invest in a small baler if you have a suitable tractor. A New Holland 945 was the latest 'high capacity' baler of its time, and one in good working order can probably be found for under £4,000. Once acquired, however, requests by other smallholders in the area to come and bale their hay will soon make the investment pay dividends. ■

It may take less time to bale and bring in large bales, but they must be stacked very carefully in the barn as they can fall down like skittles

All about Christine Page

Christine Page owns and runs a small-scale, regenerative organic pastoral farm in south Shropshire. For more information, visit www.smilingtreefarm.com