

Bale safety part 1 – stacking and storage

Purpose:

To promote safe working practices when working with round or square bales.

Why:

To prevent risk of serious injury or fatalities caused by the incorrect stacking and of bales.

TIAH Capability Framework area:

This aligns with the knowledge and skills in the Health and safety area.

<https://tiah.org/tiah-capability-framework>

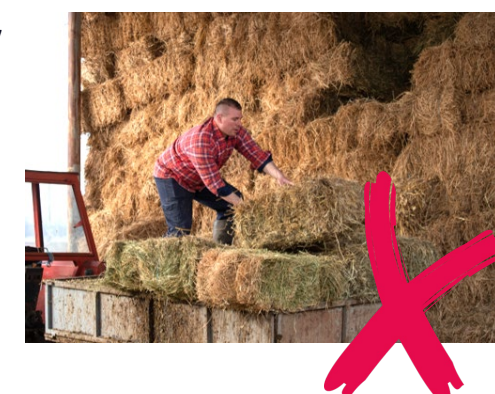
Talk leader instructions:

- Prepare to do the talk in a suitable/quiet location with no distractions
- Consider using some of the resources as part of the talk, e.g. showing a video
- Engage with participants, ask questions and give everyday examples
- Conclude with a brief review
- Get everyone to sign the form. Make sure to write the name of the farm and the date. Keep a copy in your Health and Safety records
- Ensure all participants have access to a copy of this document to refer to once the session has finished. This could be electronic and emailed or printed

Background

The unsafe handling of bales can pose a significant risk to farm workers, contractors and the public. **Never stack bales unless you're fully trained and have the right skills and knowledge to work safely**, including how and where to build safe stacks, how to assess their condition and how to de-stack safely. You should also be mentally and physically fit as skill, concentration and a degree of energy are required.

The person in this picture is at risk from the bales toppling over and injuring or killing him. He should be using appropriate machinery to stack them in the correct format/pattern and not handling them manually while stood on top of a trailer.



Main learning points 8 minutes

Q: What are the main hazards associated with bale handling?

Responses could include:

- Dangerous manoeuvring and loading and unloading of vehicles
- Unsafe use/misuse of lifting equipment
- Unstable stacking of bales
- Poor manual handling techniques
- Unsafe opening of bales
- Unsafe system of work
- Inadequate machinery maintenance - lifting equipment such as telehandlers require thorough examination as specified by Lifting Operations and Lifting Equipment Regulations 1998 (LOLER)
- Overloading of machinery
- Injury from machinery such as bale spikes on lifting equipment

Stacking and storing bales

- Keep all people out of the work area when working with bales
- Build on firm, dry, level ground
- Only handle big square bales using mechanical lifting equipment
- Avoid working or building stacks under Overhead Power Lines (OHPLs) – risks can be reduced if activities are at least 10m from OHPLs. **ALWAYS** check the maximum height and reach of your machine and have details of maximum working heights permitted under each span of OHPL. If this isn't marked on the farm map, you can get advice from the Distribution Network Operator (DNO)
- Don't build stacks over underground gas pipes or water hydrants, as the stack could cause an obstruction if emergency repair work needs to be done
- Keep the stack away from fire hazards and sources of ignition
- Provide sufficient access to allow for transportation or moving of bales
- Avoid stacking close to a footpath, road or livestock. If there's no alternative, check with your supervisor to see if signs or fencing are required
- The bottom of the stack should be the widest and provide a firm foundation
- Only use bales of sound construction – particularly around the edges
- Monitor the stability of the stack especially when bales are removed as conditions can change. Restack safely using the appropriate equipment
- Wear appropriate Personal Protective Equipment (PPE) where required

The poster on the next page can be printed out and put on your notice board to remind your team how to stack bales correctly.

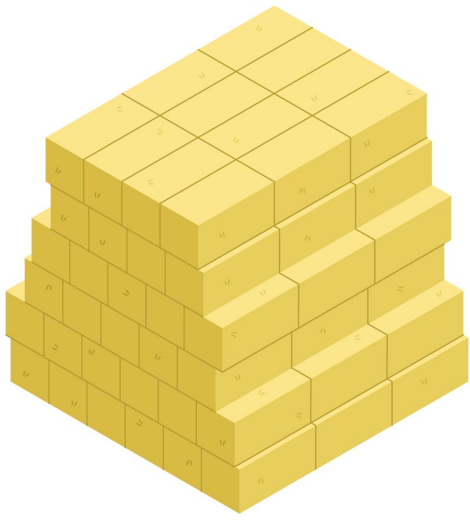
Notes:

SAFE BALE STACKING

Stack bales correctly to help keep you and others safe



Big square high-density bales

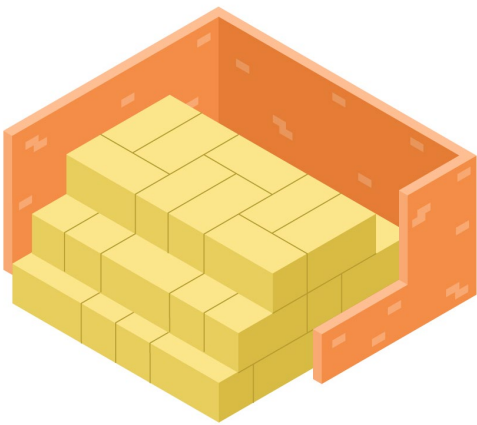


Caution: Big bales can kill a person if they fell on them. They weigh up to 600kg each

Correct stacking:

- A wide base that narrows slightly as it gets higher
- Alternating layers of single or double bales that 'tie in' those below, i.e. there should be an overlap of half a bale width all round to add enough stability and strength to stop the stack from splitting
- These stacks should not be built higher than:
 - one-and-a-half times the width of the base;
 - the reach of the equipment available to de-stack it;
 - ten bales on hard-standing or concrete;
 - eight bales on sites where no hard-standing is available

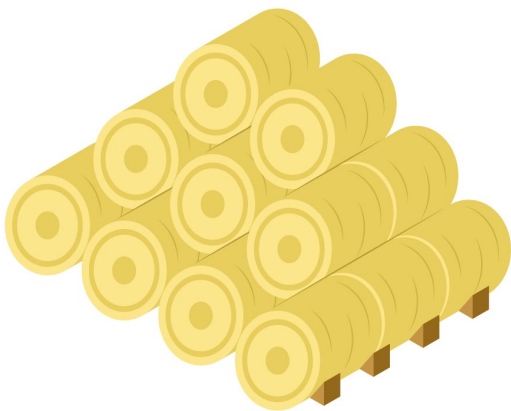
Small square/conventional bales



Correct stacking:

- Bales should be interlocked closely
- Alternate layers should be rotated and slightly offset so that each bale is locked in, e.g. in a brickwork pattern
- The part of the stack from where bales will be removed should be built in 'steps' to allow safe access for stacking and de-stacking

Round bales – Pyramid stacking



Correct stacking:

- The safest way to stack round bales is on their sides in a pyramid
- The bottom rows on the outside should be fitted with stakes or chocks
- Each layer should be overlapped by half a bale front to end

Round bales – End stacking



Caution: Stacking round bales on their ends can lead to unstable stacks because inconsistent bale density allows bales to settle and shift

Correct stacking:

- End stacking should only be done if bales are to be stored within a building where the building has sides or other suitable measures are provided to reduce the risk of bales falling out.



Notes:

Suggestions/ ideas:

Discussion points 9 minutes

Print out the image on the next page, show it to your team, then ask them to answer the below question.

Q: What could be done to improve the safety of the stack of bales?

Responses might include:

- The height of the stack is higher than the recommended width of the base to height ratio. Stacks shouldn't be higher than one and a half times the width of the base
- Bales within the stack should be interlocked
- The structure should be stepped back to provide more stability
- The stack is very close to the road. Ideally it could be moved further back with bales interlocked and stepped so there's less risk of bales falling and hitting a car or pedestrian
- The stack is quite close to the gate so poses a higher risk to workers and machinery entering the field. Ideally it could be moved back to allow the gate to open fully

Q. What accidents, fatalities and health problems can arise from work activities associated with bales?

Responses might include:

- Falling from stacks
- Falling from vehicles and machinery used to transport or stack bales
- Being struck by falling bales
- Electrocution from contact with overhead electricity power lines (OHPLs)
- Trips and falls from loose bale string
- Contact with bale handling machinery such as elevators
- Being hit by vehicles during stacking. Anyone not involved in the operation should keep well away
- Fires
- Manual handling related injuries, such as bad backs, strains and pulled muscles
- Respiratory diseases and infections caused by exposure to dust



Remember: Always take a charged mobile phone with you when working and store emergency numbers in your contacts. If working alone, let your supervisor know what job you're doing, where you'll be, and how long you expect the job to take. You can also download the What3words app to your mobile, so that emergency services can locate you quickly should they need to.

<https://what3words.com>



Note: Make sure that buildings in which bales are stored are suitable and of sound construction. If a bale accidentally topples, it can cause damage to buildings as well as equipment and machinery.



Important: Children should never be allowed to play on bales. Remove ladders or put barriers in place to prevent them gaining access. Children should have a safe enclosed area to play, away from the farm workplace.

For more on bale safety, you can download our other Toolbox Talk: Bale safety part 2 – moving and transporting

You can find this in our Learning Hub at <https://tiah.org>



Summary/Wrap-up

 1 minute

To help prevent serious accidents, fatalities and ill health associated with the handling of bales, it’s essential to always follow best practice and ensure you are fully trained and competent. If you are not yet fully trained, then you must be supervised by a trained a competent person in the meantime.

Resources:

- HSE: Safe working with bales in agriculture: <https://hse.gov.uk/pubns/indg125.pdf>
- NFU: Get a handle on you bale stacking:
<https://www.nfuonline.com/updates-and-information/safe-loading-of-bales-what-you-need-to-know>
- Farmers Guide: A guide to bailing safety: <https://www.farmersguide.co.uk/business/farm-safety/a-guide-to-baling-safety>
- Irish Farmers Journal: Stay safe during silage bailing:
<https://www.farmersjournal.ie/focus/baled-silage/stay-safe-during-silage-baling-157194>
- Teagasc: Bales can kill with lethal force: <https://www.teagasc.ie/publications/2020/bales-can-kill-with-lethal-force.php>
- HSE: Working safely near overhead electricity power lines: <https://www.hse.gov.uk/pubns/ais8.pdf>

Toolbox Talk participants

Toolbox Talk: **Bale safety part 1 – stacking and storage**

Name of farmDate

Talk leader name.....

Name	Signature	Date