

Silage walls: consider safety and capacity

Silage pits on some farms are dangerously high.

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Herd size has increased, but in many cases there hasn't been a corresponding investment in silage storage. Grass is being piled ever higher. This is a serious safety concern when personnel are filling and sealing the grass, but also when emptying the pit.

Silage loaders and tractors can easily turn over on high pits. The sides of silage clamps should have a slope of less than 45 degrees. In a walled pit, the silage above wall height should also slope in at less than 45 degrees.

The moisture content of the grass, the width of the silage pit and the competence of loader operators will all influence how high the grass can be safely placed. The risk of a pit splitting is greater with wet grass and this is an added safety risk for the loader operator.

Contractors need a reasonable working width to roll the pit effectively. Walled pits are usually a safer option than a simple silage base or clamp.

More capacity and less waste

A walled pit will hold approximately 20% more silage than the corresponding silage slab. Consolidating the grass, covering the pit and keeping the pit reasonably air tight after opening are all easier with a walled pit. The result is less waste in a walled pit when it is filled and sealed correctly.

Specifications

The Department of Agriculture, Food and the Marine (DAFM) has two specifications covering silage facilities; S128 for silage slabs and S120 for walled silos.

Farmers or builders may be tempted to use less steel or substitute mesh steel for the horizontal steel. This can be a costly mistake.

Silage walls have to withstand a lot of pressure. The vertical steel is important, as it holds up the wall. The horizontal steel also plays a key role.

The chemical reaction between ce-



ment and water in the fresh concrete generates heat. As the newly formed concrete cools, the concrete mass shrinks and the horizontal steel is there to take the strain and prevent vertical cracking.

In very long walls, joints should be formed at no more than 12m intervals. Waterbars should be placed in the joints and joints should also be sealed with a gun-applied sealant.

The minimum concrete grade for silage facilities (including purpose-built silage effluent tanks) is S.100 Mix A (think of 'A' for 'SilAge').

This not only covers the 45N strength but it also includes a minimum cement content, slump class etc. The minimum concrete grade for all other grant related facilities is S.100 Mix B.

The required batter of 1:12 on silage walls gives extra width and therefore strength at the base of the wall where the forces are greatest.

Guide rails

Guide rails on walls are required to comply with DAFM specification S120. It is an option to put them on the outside of the wall so that it is feasible to walk on the wall.

The farmer with this silage wall has



installed a platform for safety because there is a big drop away from the silage wall. A half metre of galvanised serrated antislip walkway has been used here. This is sold in 6m x 1m sections.

Other farmers are looking at doing something similar to give extra comfort in sealing the pit. Having the guide rails out from the silage wall will make it less likely that the loader will collide with them.

Other tips

- Beware of wires becoming detached from tyres used to secure silage pit covers. A Donegal farmer lost more than one animal because wires from the inside of tyres fell down onto the face of the open pit. They ended up in the cows' diet causing peritonitis. Exposed tyre wires are also a hazard to handlers and can damage plastic.

- Check the adequacy of effluent collection, channels and storage. Channels should be clean and free from waste material or fresh grass.

- Place a drainage pipe in the channels to keep a space for effluent to flow and ensure that the outlet to the tank is clear.

- If necessary, please contact your local Teagasc advisor for further advice.

