**Maintenance Tip: Concrete deterioration**

**Presented as a Public Service for the purposes of Farm Safety.**

**LET’S TALK SILOS - SILO SENSE - COMMON SENSE**

**For many years, tower silos have stood – like soldiers standing at attention – protecting farmers valuable feed crop – protecting it from not only spoilage but against contamination and other negative outside sources. Tower Silos have performed so well and for so long that often little attention is given to their value and importance on the farm, or to their maintenance.**

It’s hard to get excited about what happens in slow motion. For the most part, concrete silo deterioration goes unnoticed. Yet, this issue causes the most silo failures. In many cases, a disbelieving farmer has been advised: “Fix it or it’s going to fall over.” Some of these silos fail every year, usually after filling.

In both concrete and stave silos, the concrete in the walls sacrifices itself to the acidity of the feed placed in them. Depending on moisture, this may be a long-term process or it can happen rapidly. This concrete deterioration affects concrete and stave silos differently.

In all silos, during filling, approximately on half the weight of the feed placed in them is transmitted to the silo walls. So, if you put 500 tons of feed into your silo, 250 tons bear on the silo walls vertically. Most stave silos average a little over 3 inches in thickness. Some are ribbed while others are steel reinforced. When the staves in these silos deteriorate, they can no longer withstand the vertical load placed on them. At this point they sheer, resulting in a lean or collapse.

Concrete silos normally have a 6 inch vertical wall. Even as their concrete deteriorates, a substantial part of the wall remains which allows them to withstand the vertical pressure. The concern with concrete silos is their ability to withstand the horizontal pressures placed on them by the feed. With deteriorating concrete, the rebar in these silos loses its bond to the concrete. That is why concrete silos in need of repair crack and stave silos lean.

What do you look for? When the stones show in your silo, it’s time to fix it. If the stones are loose, the situation is critical. In plastered stave silos, when the plaster is gone, it’s time to reline. Exposed stone and exposed rebar in concrete silo is a recipe for disaster. Special inspection is needed for hollow stave silos that are below grade. These hollows tend to fill with silage juice or moisture. The freeze/thaw cycle and acid deterioration in these hollows greatly reduces stave strength over time.

What’s the fix? First, inspect your silo during unloading. If the plaster is gone, if the stones show or if there is exposed rebar, plan to get it empty and fixed before the next filling. Sometimes it’s recoating, sometimes you will need to pour a sleeve around your silo and other times it may also require hoops. Contact an experienced professional for advice.

**Your tower silo is protecting your valuable feed. It needs to be in top notch condition to do its job. You can’t expect it to do its job if it’s not maintained. When signs of “fatigue” appear, call your silo professional for advice. Remember, relining a silo usually costs less than painting a barn. Your silo that has worked so hard deserves a new coat. And Remember: ----- never, never, never fill a silo that you may suspect needs repair!**

Disclaimer

These articles are contributed by Bruce Johnson of Wisconsin Silos. They are meant to be informative and fun to read. They are not all inclusive. Your best source of information is the International Silo Association Operator’s manual or call the International Silo Association at 610-607-3622.