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PRESS RELEASE

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FOR IMMEDIATE RELEASE

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SILAGE BUNKERS AND PILES: KNOW THE DANGERS

Horizontal silo forage systems are economical and maintain high-quality forage at low cost. These benefits are maximized when producers and farm managers implement safety practices to reduce potential for tractor or truck rollovers, run-overs by or entanglement in machinery, falls from heights, crushing/engulfment due to collapsing silage or injury resulting from worker complacency or fatigue.

Identifying silage safety principles is one of the aims of Central States Center for Agricultural Safety and Health (CS-CASH). This University of Nebraska Medical Center group (https://www.unmc.edu/publichealth/feedyard/) is conducting two research projects (funded by National Institutes of Occupational Safety and Health) that are designed to make a positive impact on the sustainability of cattle feedyards through increased safety and health efforts.

James Carrabba, Agricultural Safety Specialist at the Northeast Center for Occupational Health and Safety-NEC, Bassett Healthcare Network in central New York State, says key silage safety principles used when covering and feeding out silage can help make covering the pile efficient as well as safe.

During filling and packing, silage should be packed in a progressive wedge shape. Packing tractors should aim for spreading and packing silage in four- to six-inch layers to achieve proper packing pressures. Silage that is properly packed may be less prone to face collapses during feedout.

“Before covering activity begins, conduct a safety meeting with the covering crew,” Carrabba says. “Designate those who will work near the edge of the pile. All other workers must stay away from the edge.”

All silage workers must wear non-slip shoes. Before the work begins, remind them to watch out for each other and make it clear that no horseplay will be tolerated.

“All workers should stay away from the edge as much as possible,” Carrabba says. “Use long-handled tools to push plastic and tires out to the edge of the sidewall. Anyone working near the edge should face the edge at all times and know where they are standing in relation to the edge of the pile.”

Anytime new silage is added to an existing silage pile, the transition point should be marked. Train workers on the location of the transition points. The new silage will not be interlocked with the old pile and large sections of silage can collapse during feed out.

New silage should NEVER be placed on top of existing silage that has a plastic covering in place. While this may seem like a good practice in regard to maintaining silage quality, it actually results in excessive potential for face collapse during feedout. Anytime workers are active in transition areas in a silage pile, extra caution is warranted to prevent silage accidents.

Feeding silage from a horizontal silo puts workers in the path of a range of hazards. Understanding the dangers and taking steps to amplify safety can help avoid injury related to toxic gases, injury or death related to a silage avalanche, or serious falls.

Written safety protocols for horizontal silo feedout safety will allow managers and workers to thoroughly refresh their understanding of silage feedout safety. All those working around silage should be thoroughly trained. Training sessions should include signing of an attendance roster to verify that training is completed.

Overhang on a silage pile can pose serious risk for injury or death. For that reason, during loading and packing, silage should never be piled higher than the reach of unloading equipment.

Keep in mind that nitrogen dioxide and carbon dioxide are generated after initial silo filling. The highest amounts of these deadly gases are present during the first two or three days following filling activities. However, portions of the gases can remain for up to three weeks after the silo is filled. This could be a hazard if the plastic on freshly covered silage has to be removed to add more to the pile. No one should be allowed to be in the silo area during those first three weeks.

At all times, only authorized personnel should have access to the silo. Visitors and children should always be kept away from the area. By placing highly visible signs such as “No Unauthorized Personnel” and “Danger, Keep Out, Silage Can Avalanche,” risks to visitors, children and any bystanders can be reduced. If possible, consider fencing off the horizontal silo area.

“All workers should wear high visibility clothing or vests,” Carrabba says. “Always use the ‘Buddy System’ and have a second worker present when working around silage. While in the silo area, all workers should maintain communication and visibility.”

No one should ever walk up to the silage pile face. A safe distance around a silage pile is three times the height of the pile. In collecting silage samples, use a loader bucket, keeping the loader within the limits of a safe distance from the face.

Workers on top of the silage pile should stay at least 8 to 10 feet away from the leading edge of the pile. Some guidelines suggest staying as far away from the edge as the pile is tall.

"When working around silage, always wear non-slip tread footwear," Carrabba says. "To pull back tires and plastic from the edge, use long-handled tools. If possible, throw tires and plastic off the sides of the silo."

Tires, sidewalls, gravel bags and plastic or any coverings should be removed during daylight hours. If this work must be done at night, workers must have adequate lighting.

Never hand-pitch spoiled silage of the top of the pile. In removing silage, shave down the face, keeping the silage face as smooth as possible. As its fed out, the silage face could be angled back slightly toward the pile to further reduce overhang conditions. Overhang situations can also be reduced by avoiding removal of silage at the bottom of the silage face.

In driving loaders or other heavy equipment, do not drive either parallel or in close proximity to the pile. Never park vehicles inside the silage-face safety zone.

To reduce potential for entanglement in equipment, shut off equipment, such as a silage defacer, before servicing or adjusting. All guards and shields should be in place on rotating components.

Silage feedout faces can be as high as 20 to 25 feet and bunker silo walls are often 14 to 16 feet high. Guidelines that reduce the risk of a serious or fatal fall include:

- Use caution in removing plastic, oxygen-barrier film, tires, tire sidewalls, and gravel bags.
- Always wear shoes featuring a non-slip tread.
- Consider wearing a safety harness tethered with a lifeline. The lifeline anchor point must be able to withstand 5,000 pounds of force. The lifeline must be short enough to keep the worker from hitting the ground if they fall.
- Never stand closer to the top edge of the feedout face than the height of the silage.
- Enforce zero tolerance for any kind of horseplay on the top of the pile.
- Don't pitch or discard surface spoiled silage by hand.
- Never allow anyone to ride in a loader bucket for any reason.

Silage avalanche can occur at any time, quickly inuring or suffocating anyone caught in its path. To avoid risk of injury or death from an avalanche:

- Never fill the silo hinger than the unloading equipment can safely reach.
- Never allow anyone to approach the feed-out face inside the area less than three times the height of the pile.
- Always use the Buddy Rule so someone is immediately available to help rescue anyone buried by a silage avalanche.
- Never dig the loader into the bottom of the silage pile. This type of undercutting creates an overhang that can fall at any time.
- If the loader must be driven inside the safe zone along the feed-out face, always implement the Buddy Rule.
- Never work or stand closer to the edge of the pile face than its height.

"Silage safety awareness has improved in recent years,"Carrabba says. "However, there's still much to be done to protect farmers and workers from these hazards."