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PRESS RELEASE

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FOR IMMEDIATE RELEASE

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BASIC SILAGE SAFETY: AVOID THESE COMMON ERRORS

Every silage pile poses potential for serious, even fatal, incidents caused by tractor rollovers, equipment runovers, falls from the silage pile or bunker, crushing and engulfment by collapsing silage, and more.

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.

“Some common errors that lead to silage accidents and injuries include piling silage higher than the reach of unloading equipment, walking up to the face of a silage pile, or working too close to the leading edge on top of the silage face,” James Carrabba, Agricultural Safety Specialist at the Northeast Center for Occupational Health and Safety-NEC, Bassett Healthcare Network in central New York State, says. “There has been some increased awareness of silage safety in recent years. OSHA’s LEP (Local Emphasis Programs) notices for Wisconsin and New York dairy farms, included horizontal silo safety as one of their 12 Dairy Dozen areas.”

The late Keith Bolsen, Kansas State University (KSU) Professor Emeritus of Cattle Nutrition at the KSU Animal Sciences & Industry Department, contributed greatly to silage safety education through the Keith Bolsen Silage Safety Foundation (www.silagesafety.org), an organization he and his wife Ruthie established following Keith’s 32-year KSU teaching and research career.

“Lallemand, Cargill and Connor Agriscience have also promoted silage safety in the industry,” Carrabba says. “However, there’s always more that can be done.”

Carrabba notes that safely working around silage requires knowledge of the hazards found in three key aspects of feeding silage: filling horizontal silos, covering silage and feeding it out.

Before silage storage activities begin, producers should carefully inspect their storage facility to ensure that the integrity of the silo hasn't been compromised.

"In a silo with concrete panels as sidewalls, inspect the walls to make sure a panel won't kick out or fail when filling the silo," Carrabba says. "Be sure workers are properly trained regarding appropriate silage pile height, don't allow anyone to work around the silage pile by themselves, and make sure employees aren't fatigued or unsure how to operate equipment."

No one working with silage should be under the influence of drugs or alcohol. Be sure there are enough workers to manage the work being done and take periodic breaks. Employees should carry water and snacks with them, and work shifts should be rotated to ensure workers are properly rested.

"While filling a silo, make sure all workers know that only authorized personnel are allowed in the silo area," Carrabba says. "All others should be kept out. Workers should wear high visibility clothing or vests. Appropriate signage around the area includes signs such as 'No Unauthorized Personnel,' 'Danger,' 'Keep Out.' Signs should be highly visible to anyone who approaches the area."

A key principle of bunker silo silage safety is knowing how high the silage can be packed without setting the stage for undermining or overhangs. The pile should never exceed the reach of the unloading equipment.

ROPS-equipped (Roll Over Protective Structures) equipment is critical for leveling and packing silage. Operators should also wear seat belts. Use low-clearance, wide front-end tractors equipped with well-lugged loaded tires.

"Use your most experienced operators for this task," Carrabba says. "All workers operating equipment need to wear their seatbelt. No extra riders should be allowed, unless they are being trained. Make sure new operators are properly trained and observe their work to ensure they follow safety policies and practices."

Each forage layer must be tightly packed. If new silage has been added to existing old silage in a horizontal silo, mark that transition point. The new silage will not be interlocked with the old silage and large sections can collapse unexpectedly when feeding out.

Do not pile new silage on top of existing silage that has a plastic covering in place. Although this may seem in the best interest of forage quality, it can result in excessive hazard of face collapse during feedout. Extra caution is warranted with any activity in these transition areas.

Rollover hazards are an obvious risk during silage-packing activities. Side slope ratios are an important safety concern during packing. Many factors influence safe operating gradients.

"Minimize lateral side slopes as much as practical," Carrabba says. "Strive to be at least 6:1 side slope and beware of soft spots in the pile. The packing tractor must be able to drive over all parts of the silage pile for safe packing."

Safest packing of a silage pile is achieved when the tractor drives up and down the pile. Some references suggest using no more than a 3:1 slope in the direction of travel for this type of operation.

When filling bunker silos and drive-over piles, pack tractor operators should always form a progressive wedge of forage and maintain a minimum slope of 1:3 on the ends of a drive-over pile.

Use radios so operators can communicate with one another. Adjust the mirrors on all tractors and trucks. To help stabilize packing tractors, add wheel weights and weights to the

front and back of the tractor. When using two or more pack tractors, establish a driving procedure to prevent collisions.

“As your farm changes, please consider how to size and organize horizontal silos so pile height and slope allow packing equipment to safely drive over all sections of the pile, and silage isn’t piled higher than the reach of your unloading equipment,” Carrabba says.

Trucks should have backup alarms installed. Operators should stay in their trucks while waiting to unload. If someone must exit, they should communicate their intention to the other operators on the site.

Trucks that are dumping silage should NOT back up onto the silage pile since trucks become less stable once the bed is raised. Only when the truck is on a firm surface, should the dump bed be raised and the silage unloaded.

Reverse alarm devices or a remote video camera may be installed on large machines to increase visibility for operators and warn personnel in the area that the equipment will be moving in a reverse direction.

Bystanders should never be allowed in the silo area, especially children.

Be vigilant about avoiding worker fatigue and complacency. Even the best worker can become frustrated and resort to shortcuts if they’re overtired and stressed.

“If producers are aware of the hazards related to silage, they will implement policies to protect themselves and their workers from these hazards,” Carrabba says. “Unfortunately, there are no industry standards for horizontal silo safety procedures. We need to continue promoting safe silage practices. Farms should develop written protocols for silage filling safety and train their workers on those protocols regularly. Document all training sessions with a sign-in roster.”

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