

## **Silo Fire Alert**

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I have already received reports of several silo fires resulting from this year's corn silage harvest. This is not surprising in view of the extremely variable moisture conditions of corn within single fields and in fields from farm to farm within the region.

The risk of silo fires increases when ensiling materials that are too dry, generally less than 45-50% moisture, or when silages are too dry to pack well, and when air leakage occurs in the storage structure. When ensiling low-moisture materials, chop them finer, fill rapidly, distribute the material evenly in the silo to avoid particle separation, pack the material very well, and seal the structure well when finished. This will help prevent the buildup of dry leaves and cobs around the silo wall, and help drive off oxygen from the silage as quickly as possible, thereby reducing heat buildup. In spite of all these precautions, it is still possible for pockets of dry material and oxygen to exist and heat up in the silo to the point of combustion.

The question is often asked, "should I add water to dry silage at the time of harvest?" This has very little beneficial impact for a number of reasons. First of all it takes a lot of water to raise the moisture level of dry silage to a desirable level. For example, it will take over 30 gallons of water to raise the moisture level of 1 ton of silage from 45% up to 55%, and that still isn't high enough for optimum fermentation. If you add this much water, it could create more problems than it solves. "Why?", you may ask. Much of this water will not be absorbed and adhere to the silage particles. Instead, it will tend to drain away and create a soupy mess in the bottom of the silo, creating more seepage problems, further deteriorating the quality of the silage, and exerting more pressure on the bottom of the silo than what it was designed to support.

Most silo fires occur in the top 10 feet of a silo, but others can occur in the middle of the silo or at places where there are air leakages. Usually, the first sign of many silo fires is the charring or burning of silo doors. In some cases bits of charred silage may drop down the chute and ignite in the presence of air, and sometimes you will see smoke rising from the silo or from the silo chute.

Once you detect or suspect a silo fire, what should you do? First of all, don't panic. Silo fires generally progress slowly, which gives you time to address the situation in a thoughtful manner. The second rule would be, don't attempt to take care of the situation yourself because there are some potential dangers. Fires can produce some odorless gases that are deadly and/or explosive. And, adding water may not be the thing to do! In certain situations, this practice has caused explosions and deaths in oxygen-limiting structures.

I've suggested what not to do, so what should you do? Call in qualified experts and let them analyze the situation and take appropriate action. Meanwhile, seal off the bottom of the silo chute with a non-flammable material to help prevent updrafts of air from fanning the fire. Remove flammable materials from the base of the silo, and if the barn is at risk, remove cattle and other valuable property.

Extinguishing Fires in Silos and Hay Mows, NRAES-18, is available from NRAES, Cooperative Extension, 152 Riley-Robb Hall, Ithaca, NY 14853-5701, or it can be ordered on line from <http://www.nraes.org/>.

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