

# Important tips given to prevent silo failures

ITHACA, N.Y. — After a century of use on dairy farms, upright concrete silos are becoming the subject of increased planning, management and regular maintenance.

Reason for the heightened concern is attributed to the greater stresses and strains being placed on the silos as they have increased in size and capacities.

Several silo failures occurred in Pennsylvania last year. One toppled in Lancaster County and another tilted. Two were reported down in Berks County. Other failures were cited in New York and Canada.

The problem became serious enough to arouse concern among ag engineers and silo manufacturers, who met recently at Cornell University to discuss recommendations for preventing such failures.

The Cornell group decided silo failures can be divided into two categories, foundation and structural.

Foundation failures, according to findings, can be the result of three deficiencies, including soil bearing, inadequate footing design and construction and underground erosion.

The group recommended that soil tests be made before footings are installed and that farmers not install their own footings "unless they understand the finer points of load bearing capacity of the soil and good concrete design."

A soil test probably would have prevented a new silo from tilting on Elam Zimmerman's farm near Lititz. A check showed the structure had been erected over what appeared to have been a filled-in lime kiln.

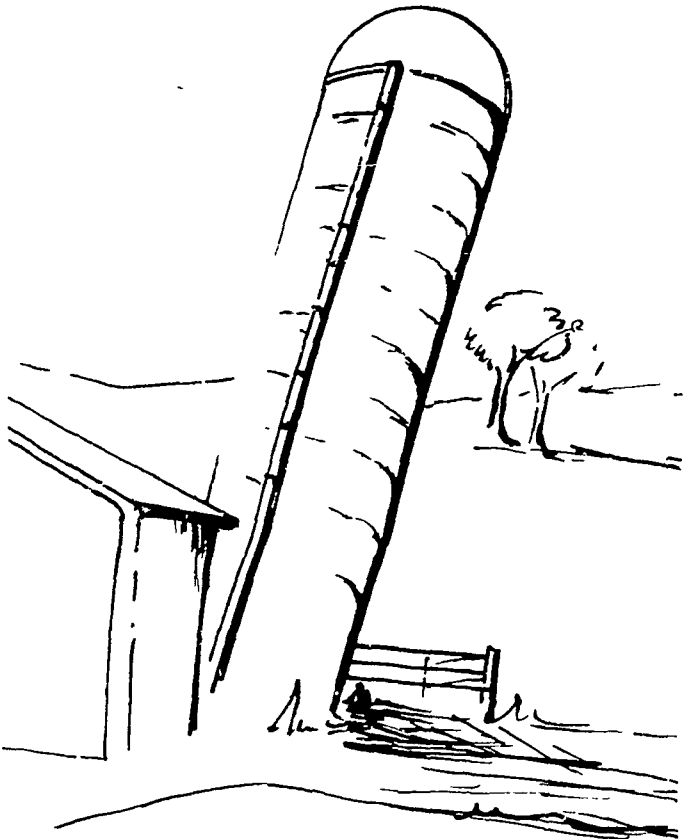
Mike Bozozuk, structural

engineer for the National Research Council of Canada and an expert on silo problems, recommended soil testing before building a silo foundation, especially in clay soils. He believed some silo problems are inherent in the ring-shape foundations widely used and favored solid foundations. He noted that foundation problems also can occur when two or

more silos are grouped too closely together.

Some failures apparently have been caused by high volumes of silage juice undermining ring footings because of improper drainage. In other cases, ring footings tilted due to soil erosion caused by long periods of heavy rains, particularly in clay soils.

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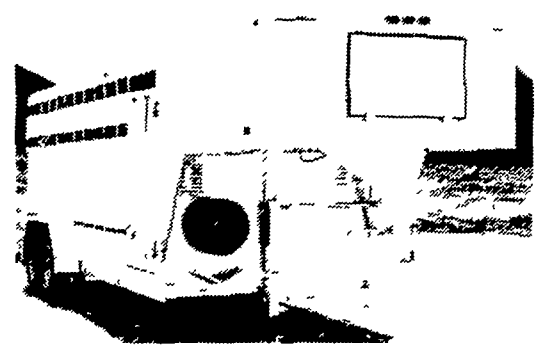


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