

Silo filling in Story County -
Oct 1913 (ISU Archives)

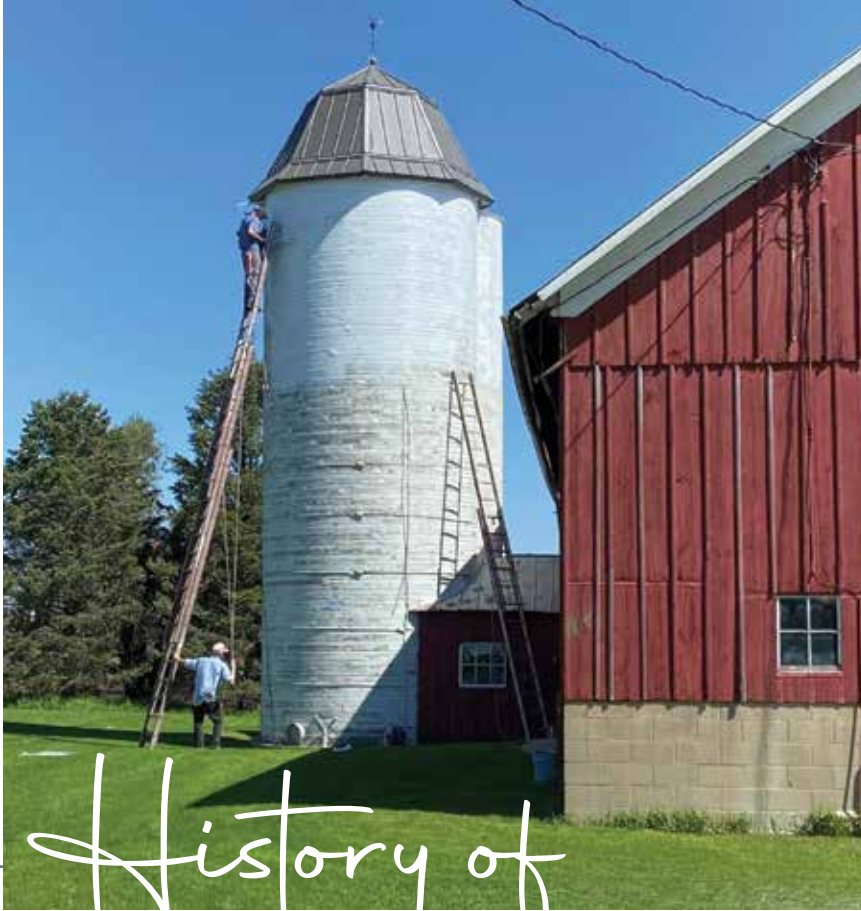


History of

SILO CONSTRUCTION IN IOWA

— BY DAVE AUSTIN —

When most people hear the phrase “dynamic duo,” Batman and Robin immediately come to mind. Growing up on a dairy farm, my mind goes to barn and silo. A barn just isn’t complete without a trusty silo sidekick standing tall next to it. While the barn kept the animals warm, it was the addition of the silo that ensured there was ample feed for valuable livestock to survive the long, cold days of an Iowa winter.

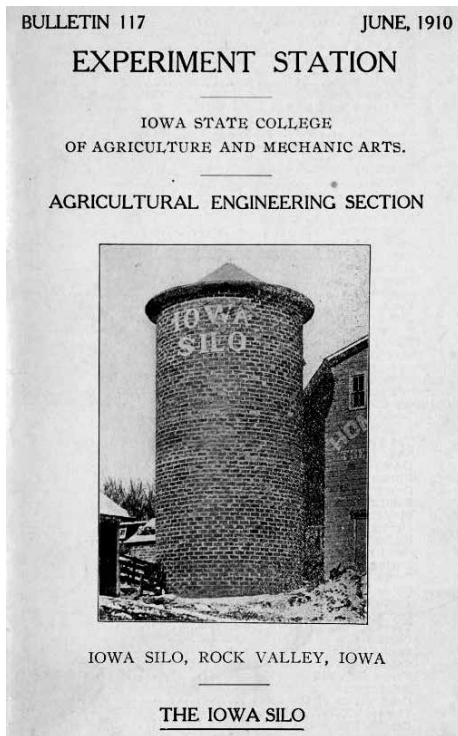


A 1936 triple-wall redwood silo by the Independent Silo Company in Bremer County recently received a new roof and a fresh paint job (photo provided by family)

Silos construction began slowly in the US in the late 1800s, largely driven by the need for winter feed for dairy operations. Milk production in northern states such as Iowa was limited to spring through fall when cattle could graze on green pastures. The high nutritional value of chopped green corn stalks could be preserved through the fermentation process that occurred inside the silo, providing silage to feed through the winter months. Corn was the primary silage material for the first half of the 1900s, with other grasses and forage crops being promoted by extension services in the second half of the 1900s.

History of

SILO CONSTRUCTION



Iowa State College publication from 1910 documenting their research on the "Iowa Silo" design.

Early uprights silos were rectangular in shape which tended to bow out under the pressure of the silage, and air pockets formed in the corners leading to spoilage. Not surprising, the design of the iconic upright round (cylindrical) silo design most seen in Iowa's countryside today came from America's Dairyland. Professor F.H. King of the Wisconsin Agricultural Experiment Station is credited with the developing the first upright round silo in 1891, which solved the spoilage problem by simply removing all the corners.

The Iowa State College of Agriculture Experiment Station published their first bulletin on silo construction in 1908. Bulletin 100 presented a new silo design constructed out of hollow clay blocks, and it was called the "Iowa Silo." Over the next two years, a total of 13 Iowa Silos were built across the state for research and demonstration. In subsequent years, follow-up publications were released providing instructions on silo construction as well how to best utilize silage in animal feed rations.

Bulletin 117 (1910) listed the essential properties of an ideal silo which helped farmers make their silo building decisions. Key characteristics that differentiated building material choice included: 1) imperviousness of the walls, 2) strength, smoothness, and durability of the walls, 3) frost resistance, 4) simplicity of construction, and 5) cost.

The original round silos of the late 1800s were made out of wood staves, made from redwood or cedar which were less prone to rotting from the silo

Interior view of 1936 triple-wall redwood silo by the Independent Silo Company in Bremer County. The interior consists of curved heart of redwood tongue and groove planks.



acids. Staves were usually 2x6 foot, curved, and joined with tongue and groove joints. Very few wood silos remain standing in Iowa today. Most that do remain standing are located inside barns, which was a common design feature of round barns.

As featured in the “Iowa Silo” by Iowa State College, clay tile blocks become popular with superior strength and durability to wood. Concrete came onto the scene around the same time, first in poured and brick form. Ultimately, it was concrete staves that took over as the most popular building material due to their low cost, strength, and durability. Metal panel silos were also built during the same time, but less common. The metal panels were more prone to rust from the silage acids, and they were susceptible to wind damage when empty.

The iconic blue Harvestore silos became popular in the 1970s, constructed out of glass-lined steel. The blue color came from the cobalt in the glass during the high-temp fusing process, which solved the issue with acids corroding the metal. The AO Smith company out of Milwaukee originally used the material to make beer brewing tanks. A farmer noted that the the beer tanks would make a good silo if they were stood up on end, which was all the inspiration the company’s engineers needed to make the transition into the agriculture industry.

Uncle Sam even got into the silo promotion business during World War I. Excerpts from a letter published in 1918 by the Iowa Council of National Defense – “Winning the war is the business of every loyal citizen of this country today. Conservation of foodstuffs is an important

patriotic duty which the government urges upon all... The silo is the great feed saver – makes succulent, nutritious feed of the whole corn plan... Every Iowa Farmer who keeps twelve or more head of cattle - or 100 or more sheep - is officially called upon to put up a silo this season.”

In the early years, silo filling was a neighborhood activity with large crews going farm to farm to help each other. Green corn stalks were harvested intact and hauled in with wagons pulled by horses. The corn stalks were fed into belt-driven silo filler which chopped and blew the corn up through a long pipe attached to the top of the silo. With mechanization, human labor was greatly reduced. Forage harvesters chopped the forage in the field

Uncle Sam gets into the silo promotion business in 1918



An example of a clay tile silo on the Dobbin farmstead in Marshall County.





A 1918 patriotic poster asking Iowa Farmers to build silos.



A Harvestore silo stands next to the Mikesh dairy barn in Winneshiek County (photo by Marlene Fenstermann).



A steel panel silo standing in front of a concrete stave silo in Sumner, IA (photo by Ron Scholten).



and blew it into wagons. The wagons were then pulled with tractors to the silo, with mechanization handling the unloading and blowing of the forage up into the silo.

Prior to the invention of automatic silage unloaders in the 1940s, farmers had to climb to the top of the silo each day to toss silage down by hand using a pitchfork. The unloaders, which worked from the top-down, were not widely used until the 1950s and 1960s. The Harvestore featured a unique bottom unloader system.

The days of building new vertical silos are now in the past on modern farms. The primary storage of choice is silo bags, heavyweight white plastic bags stored horizontally with silage being blown into them. The common size is 8 feet in diameter and 150 feet long, holding 100-150 tons of silage. Feed is scooped out with a tractor and front-end loader and fed in bulk to awaiting animals.

While the age of the silo has passed, they will always hold a special place in evolution of animal agriculture in Iowa. Next time you are on a barn tour, be sure to notice the sidekick standing next to the barn. Take some time to show it some well-deserved appreciation.

A concrete stave silo on the Jensen farm in Waverly. Concrete staves become the most common silo construction material due to their durability and low cost.