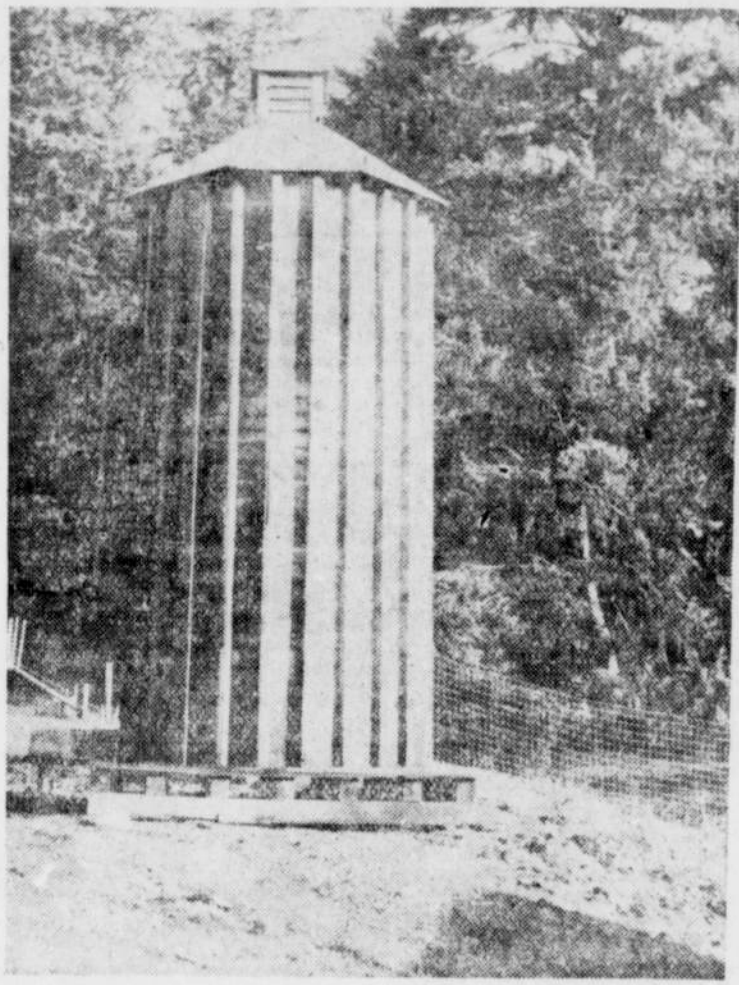


Every Dairy Farm in Tillamook Should have a Silo.



Modified Wisconsin Silo, 10x20, belonging to Commissioner S. G. Reed. Cost about \$35.

Modified Wisconsin Silo.

The foundation and floor of the Wisconsin silo are constructed as for the stave silo, placing anchoring bolts in such positions as will allow the bolting of the silo to the foundation. The silo is cut to conform to the circumference of the silo from two-inch lumber doubled to break joints. On this silo are set upright 2x4s 12 to 18 inches apart, built up to the desired height of the silo. These are plumbed from side and edge and well braced. After all are in place a plate cut similar to the silo is nailed in place on the upper ends. Strips 3-8 to 1/2 inch thick are then nailed horizontally around the inside, a layer of acid proof tar paper and then another layer of the 1/2 inch lumber but on so as to break joints. Cedar makes the best material but any good close grained lumber is all right. The paper lining must be both acid and water proof so that it will not rot away.

This type of silo is strong and durable. It is sheathed outside the appearance is greatly improved and the silo strengthened. The intermittent door is used because of the difficulty of constructing the continuous door and retaining the strength of wall adjacent to the door frame that will obviate the danger of bursting from inside pressure of the silage. County Agriculturist Smith of Coos County, has supervised the building of a number of these silos and says that their success is demonstrated by the fact that there are in the county silos of this type that have been in use fifteen years and are yet in splendid, serviceable condition. Mr. S. G. Reed, of Nehalem has one of these silos built out of resawed railroad ties and reports that it is giving good satisfaction.

Laying out Foundation in Building Stave Silo.

A stake should be driven into the ground at the exact center of the proposed silo, on the top if this stake spike one end of a 2x4 sweep.

From the spike head measure off and mark on the sweep the distance to the outside and to the inside of the foundation wall, allowing for a wall varying from 12 to 20 inches in width depending on the size of the silo, the nature of the ground and the material of which the foundation is to be constructed. The distance from the center of the silo to the inside of the foundation wall must be five to eight inches less than the radius of the silo, so that the silo wall will stand in center of the foundation. Markers

can then be nailed to the sweep, and circles described for the foundation.

When the foundation is marked out, then dig out the trench that serves as a form for the underground part of the foundation. The trench may be from 8 inches to one foot in depth, which, with the above ground portion, will give a foundation 12 to 16 inches in depth. The side of the trench should be kept straight and the bottom level. If the edge of the trench is inclined to cave, the trench should be filled with concrete and the forms may then be constructed for the above ground part of the foundation.

A form must be built around the outer edge of the foundation, by the use of 1/2 x 4 inch material bent around inside of 2x4 stakes set 2 1/2 to 3 feet apart. The whole inside surface is filled with concrete thus giving a floor 4 inches in thickness continuous with a foundation 12 inches to 16 inches in thickness. While placing the concrete set anchoring bolts one-half inch in diameter and eighteen inches long with an elbow on the lower end of the foundation in a vertical position. These bolts six to eight in number, should extend ten inches above the foundation wall. After the silo is complete the staves next to the anchoring bolts can be securely bolted to them.

Silo Floor.

The silo floor may be dispensed with only when the ground on which the silo is located is very firm. The advantages of a floor are: The silo can be easily cleaned; protects silage from rats; and no loss from spoilage at bottom. A tile of vitrified sewer pipe or two inch galvanized iron pipe should be laid under the floor. This drain removes excess moisture when from mistake or bad weather conditions the silage crop is put into the silo with too much moisture. The mouth of the drain should be covered with a heavy wire screen of fine mesh.

Silo Door Construction.

The doors of the silo should fit snugly and be convenient to handle. In some silos on the market a number of patents constitute good selling points but do not add to the efficiency of the silo. The door frame may be constructed of two pieces of 4x6 inch lumber, the length being the same as that of the staves. (The frame stands edgewise with inner edge flush with inside surface of staves). In each of the 4x6 pieces a rabbet one inch wide and one and five-eighths deep should be cut the entire length. On one side

THREE BIG SILO EXCURSIONS NEXT WEEK.

Nestucca Valley, Monday, Feb. 19.
Nehalem Valley, Tuesday, Feb. 20.
Tillamook Valley, Wednesday, Feb. 21.

Take a trip around your neighborhood with us next week and see the silos and talk with the men who are using them. You can get more ideas of the success of the silo and what kind of silo you wish to build in this way than by weeks of reading.

Every farmer with an automobile should take his neighbors who have none and take in these excursions.

The caravan will leave Cloverdale at 10 a.m. Monday morning for Pacific City returning and taking in the three silos near Beaver in the afternoon.

Will leave Nehalem at 10 a.m. Tuesday for the two silos on the North Fork, returning and taking in Mr. Reed's silo at Neah-Kah-Nie in the afternoon.

Wednesday the silo special will leave Tillamook at 10 a.m., going to John Erickson's, James Williams', then to George Tinnerstet's, Bert Folks, and C. W. Tilden's. Arrangements are being made with the ladies of Fairview Grange to serve lunch at the Grange Hall.

Don't fail to take in at least one of these excursions.

What Local Silo Owners Say about the Silo.

"I don't see how any one can successfully dairy in Tillamook County without a silo."—A. G. Beals.

"Silage fed in the spring before calving and up till grass comes, puts the cows in shape to do their best."—Dolph Tinnerstet.

"Herd dropped 350 pounds milk in fall when changed from silage to green feed."—James Williams.

"Oats make better feed in the silo than in any other form."—B. L. Beals.

"The silo enables one to keep more stock on the same land. The dairyman cannot afford to be without it."—Kuppenbender Bros.

"Silage kept the flow up through the fall and winter, and put the cows in shape for a good year's work this season."—R. O. Richards.

"The silo raises the feeding value of the farm one half, as it allows you to grow crops like corn and artichokes, which yield more per acre."—Herman Farmer.

"Silage with a little grain keeps up the flow through the winter when fat is high priced."—C. E. Donaldson.

"The best paying investment a farmer can make. Herd dropped one-half in milk three days after silage was gone."—William Maxwell.

"The only thing for a prairie farmer. I shall build another this summer."—George Tinnerstet.

"Kept up flow through the fall months."—A. W. Bunn.

"The silo is a feed saver. It will fatten the cow during the winter months so when they freshen in the spring they will start the season in better shape and do better for the season."—B. A. Folks.

"The silo gives me a method of killing the seed of yellow weed."—S. G. Reed.

Best Size of the Silo and Capacity of Sizes.

Perhaps no greater or more common mistake is made than building a silo too great in diameter for the number of stock to be fed which results in a loss of silage. The diameter of the silo should be determined by the number of stock to be fed, and the height by the length of the feeding period. If the height is greater in proportion to the diameter, the surface area is small and spoilage is easily prevented. Where silage is to be depended on the greater part of the year, it is generally better to build two silos of small diameter than one large enough to provide the needed amount of silage.

The following table based on feeding 40 lbs. silage per head per day for a period of 180 days will aid in determining the size of the silo needed.

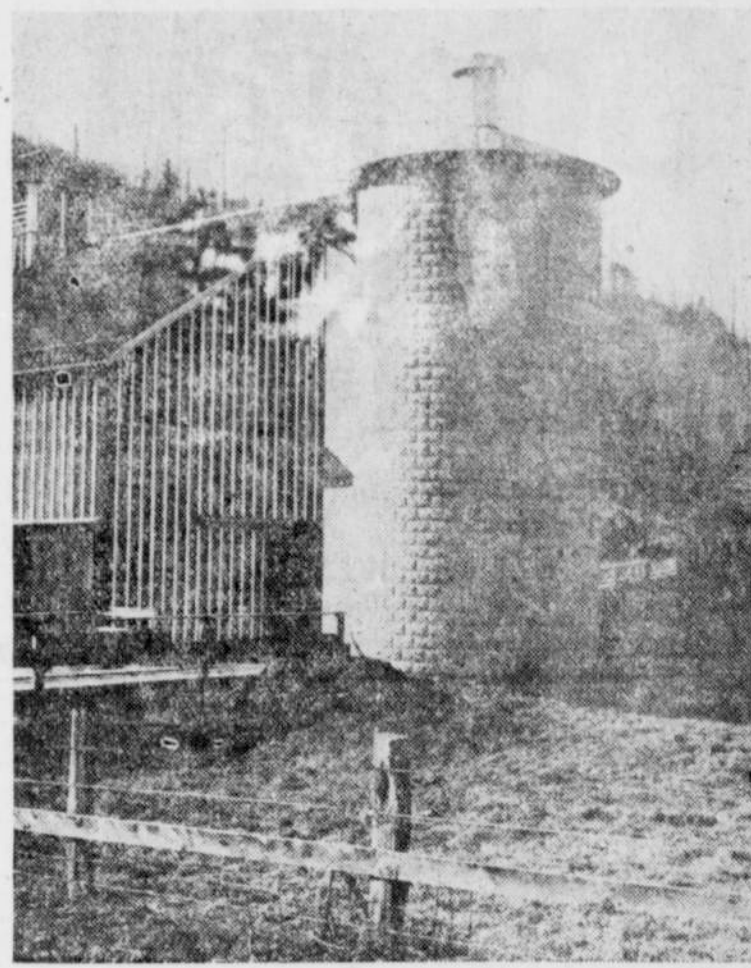
Number of cows.	Minimum pounds removed daily.	Size of Silo Needed, feet.	Feet.	Tons.
6-10	240	8	20	17
			24	20
12-15	480	10	24	34
			28	42
			31	51
18-25	720	12	26	55
			30	67
			32	74
26-30	1040	14	30	91
			32	100
			36	118
34-40	1360	16	32	131
			36	155
			40	180
42-50	1680	18	36	196
			40	229
			42	256
53-65	2120	20	36	243
			40	281
			44	320

Chute for Silo.

A feeding chute 24 to 30 inches square is a valuable addition to a silo. It saves feed and labor.

Painting the Silo.

As soon as complete the silo should be coated with carbolineum, creosote or boiled linseed oil inside, and painted with two coats of good paint outside.



Concrete Block Silo 12x32, belonging to Herman Farmer. Built in 1915 at a cost of \$450.

Use and Make of Forms for the Concrete Silo.

The determining factors in deciding to build the concrete silo should be an available supply of good sand, gravel or rock, and the use of common labor.

If a few farmers co-operate in the construction of their silos the expense of forms which will range from \$45 to \$60 could be shared, thus reducing the cost individually to a minimum. There are different commercial forms on the market but these best meet the needs of the contractor who would use them repeatedly.

The forms consist of two parts, circular in shape, one inside the other, the concrete being placed between them to make the wall. These forms are kept six inches apart by using 2x6 inch spacers, so that the silo walls when complete, will be six inches in thickness. In silos 12 feet in diameter or less, a wall five inches thick is sufficient. The forms are three feet in height so that three feet of the silo wall can be built at one time without shifting forms. After the first three feet of concrete is in place, the forms are loosened by means of the adjusting bolts, raised, and again set. This operation is repeated until the silo walls are finished.

Inner Forms.

The inner forms consists of a wooden supporting frame, which has an upper and lower circle, with facing boards outside of and adjoining the circles; and around this frame is nailed sheet metal of 18 gauge. The supporting frame is made of 1x8 inch lumber. The circles of wood are made by cutting and nailing together segments cut to the circumference of the desired circles, using a diameter one and one-half inches less than the inside diameter of the proposed silo, to allow for the thickness of the facing boards. The length of the segment is obtained by dividing the circumference of the wooden circle by 12, the number of segments used in circles of a diameter up to and including 14 feet.

Outer Form.

The outer form should be in two pieces of equal length of 16 gauge iron. A straight-edge should be used for lining up the metal sheets before marking for punching, as otherwise the outer form will not set plumb, and a bulging outer wall will likely result. Angle-iron placed perpendicularly, or lugs with an angle, may be used on the ends of each sheet, and holes should be drilled in the angle that will admit an adjusting bolt three quarters of an inch in diameter.

Footings.

The trench for the footing should extend at least one foot below the

ward the center from the wall, and 6 to 10 inches under the wall. Upon completion the trench will then be 18 to 24 inches in width and 12 inches in depth. The footing should be reinforced with wire in its construction, and on completion should be made perfectly level.

Preparing the Concrete.

The amount of cement will vary with the kind and quality of coarse materials. The ideal proportions for silo walls are one part of cement to three parts of clean sharp sand, and five parts of crushed rock or sharp gravel. Where ordinary pit-run or river bank gravel is used more cement is required. Where gravel alone is used the mixture should be one to five and with sand one to three and one-half.

The reinforcement consists of woven wire, one inch gas pipe, and three-fourth inch rod iron for tie rods. The wire should be the same width as the forms, and in the first three courses above the ground level the wire should be doubled for silos exceeding 12 feet in diameter.

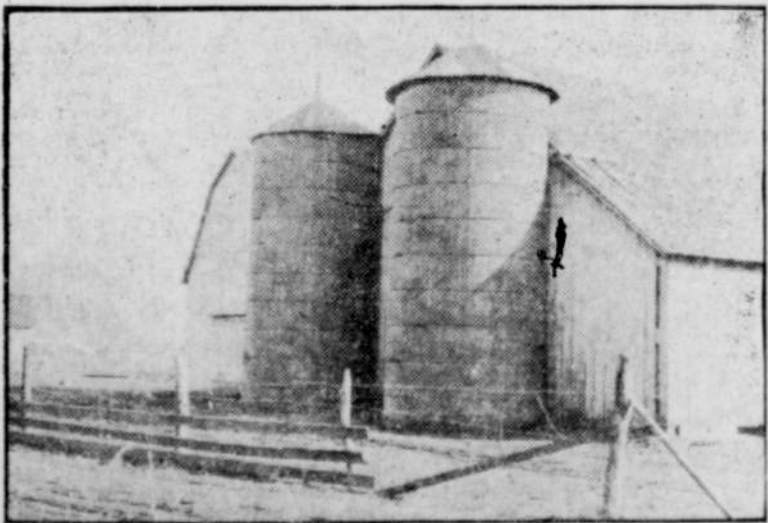
Silo Door Form.

The gas pipe is used on each side of the door form, parallel to the form and the ends of the reinforcing wire are tied about these pipes, the pipes being connected by the tie rods which conform to the circle of the silo wall and have an eye at each end, which is placed over the gas pipe.

Advantages of the Silo.

1. The silo enables us to preserve a larger quantity of food materials of the original fodder for the feeding of farm animals than is possible by any other system of preservation known.
2. Succulent food is nature's food. The influence of good silage on the digestion and general health of animals is very beneficial. It is a mild laxative and the nearest to natural green pasture of any feed we can put up.
3. The silo furnishes a feed of uniform quality, and always near at hand, available at any time during the year. No need of wading in the mud and cutting up your fields hauling green feed during the winter.
4. Less room is required for the storage in the silo of the product from an acre of land than in cured condition in the barn. A ton of hay takes up about 100 cu. ft. the same grass put into the silo occupies 140 cubic feet.
5. The crop can be cut when it contains the most nutriment and stored away whether there is curing weather or not. Our first crop on fields, not pastured in the spring, usually comes

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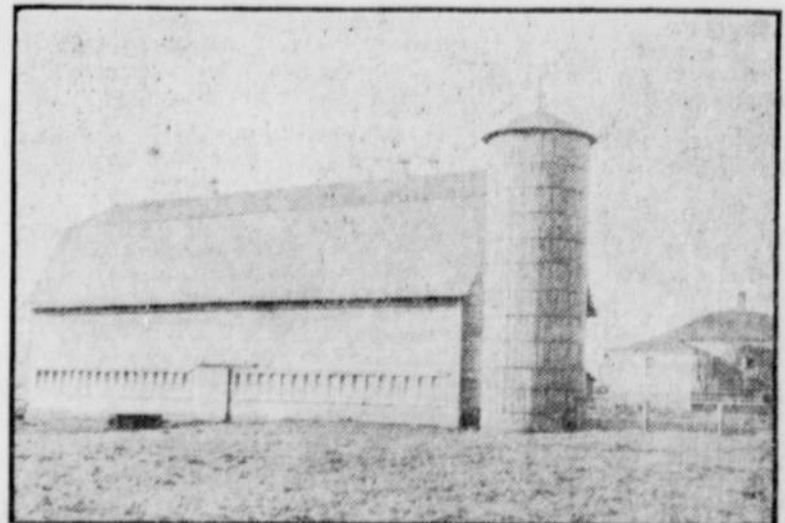
Home made Stave Silo belonging to James Williams, size 12x26, erected at a cost of \$135 each in 1915.

Silos in Tillamook County.

Nehalem Valley.
Kuppenbender Bros., 1 Patent Stave
E. K. Scovell, 1 home made stave.
S. G. Reed, 1 modified Wisconsin.

Tillamook Valley.
John Erickson, 1 home made stave.
James Williams, 2 home made stave.
Wm. Maxwell, 1 home made stave.
C. E. Donaldson, 1 home made stave.
Dolph Tinnerstet, 1 home made stave.
Geo. Tinnerstet, 1 home made stave.
Dan Billings, 1 home made stave.
Fred Maurer, 1 home made stave.
B. A. Folks, 1 home made stave.
C. W. Tilden, 1 cement plaster.
B. L. Beals, 1 home made stave.
Beals Bros., 1 home made stave.

Nestucca Valley.
Beals Bros., 2 home made stave.
Herman Farmer, 1 concrete block.
A. W. Bunn, 1 patent stave.
R. O. Richards, 1 patent stave.



Home made Stave Silo belonging to John Erickson, 12x36. Erected at a cost of \$250 in 1916.