

Economy of the Round Dairy Barn by Wilber John Fraser. txt

A	30,899 ft. @ \$25 = \$772.48	38,815 ft. @ \$25 = \$970.38	59,481 ft. @\$25 = \$1487.03
B	22,375 ft. @ \$22 = 492.25	28,547 ft. @ \$22 = 628.03	28,547 ft. @ \$22 = 628.03
C	97,000 @ \$3.75 = 363.75	102,000 @ \$3.75 = 382.50	102,000 @ \$3.75 = 382.50
D		26.76	
E	-\$1628.48=	-\$2007.67=	-\$2497.56=
F	=322,952=	=270,570=	=270,570=

ROUND AND RECTANGULAR BARNS COMPARED

In comparing the 60-foot round barn with a rectangular barn of the same area, the two barns should afford the cows the same amount of space on the platform. Allowing each cow in the 60-foot round barn 3 feet 6 inches in width at the rear of the platform, it will accommodate 40 cows and leave space for two passage ways. But in a rectangular barn, only 3 feet 4 inches of platform space need be allowed for each cow, and the 78-1/2 foot barn, with two 3-foot passage ways across it for convenience in feeding, will accommodate 42 cows. While the rectangular barn has stall room for two more cows, the round barn contains space in the center for a silo 18 feet in diameter.

The floor space and cubical content of the round barn 60 feet in diameter, and the rectangular barn compared with it in these tables, are practically the same, and the barns are therefore directly comparable. This being true, the percentages which were figured from the complete bills of material for these barns show the exact saving in lumber on the 60-foot round barn over the plank and mortise frame rectangular barns 36 x 78-1/2 feet. The lumber bills of the rectangular barns show an increase in cost of 28 percent for the plank frame and 54 percent for the mortise frame. The round barn, 60 feet in diameter, contains 188-1/2, and the rectangular barn 225 lineal feet of wall. The rectangular barn has, therefore, 22 percent more lineal feet of outside barn wall, requiring a proportional increase in both paint and foundation.

The 176-3/4-foot rectangular barn would hold 100 cows, allowing each cow 3 feet 4 inches in width and providing for 3 passage ways of 3 feet each across the barn.

The 90-foot round barn would hold 100 cows in two rows headed together, 65 of which would be in the outer circle, and have 3 feet 6 inches each in width at the gutter. This leaves sufficient room for feed alleys and walks, and two passage ways, one three feet and the other seven feet wide for the manure and feed carriers. All of this is outside of a central space for a silo 20 feet in diameter and 71 feet high, with a capacity for 620 tons of silage, and in the mow there would still be an excess, above the capacity of the rectangular barn, of 33,000 cubic feet, which would hold 66 tons of hay, or as much as the entire mow of a barn 32 x 36 feet with 20-foot posts.

TABLE 2A. --A COMPARISON OF THE COST OF MATERIAL IN ROUND AND RECTANGULAR BARNS, INCLUDING FOUNDATION AND SILOS.

	Round barn, 60 feet in diameter	Rectangular barn, 36 x 78-1/2 ft.	
		Plank frame	Mortise frame
Lumber in barn,	\$799.76	\$1023.27	\$1233.41
Material in foundation,	86.89	105.90	105.90
Material in silo,	159.01	295.26	295.26
Total cost of material			