

Calculating the Volume of Sugar in a Silo

Use the calculations for the volume of a cylinder : $\pi r^2 h$

- Determine the radius (r) in feet (ft) (the diameter of the bin divided by 2).
- Multiply the radius (r) times the radius (r) = $r \text{ ft}^2$
- Multiply the result of $r \text{ ft}^2$ times π (3.141) times 1 ft. = $x \text{ ft}^3$
- Sugar averages 56 pounds per ft^3 : Multiply 56 lbs times $x \text{ ft}^3 = x \text{ lbs of sugar}$
- Divide $x \text{ lbs of sugar}$ by 12 inches = Lbs of sugar per inch

EXAMPLE:

- Silo diameter is 20 ft. Therefore radius (r) equals 10.
- r times r (r^2) = 100 ft^2 .
- 100 ft^2 times π (3.141) times 1 ft = 314.1 ft^3 .
- 314.1 ft^3 multiplied by 56 pounds $\text{ft}^3 = 17,590 \text{ lbs of sugar}$.
- Divide 17,590 lbs by 12 inches = 1,465.8 lbs of sugar per inch.

Therefore, if this silo has 20 ft (240 inches) of sugar in it,

240 inches multiplied by 1,465.8 lbs of sugar per inch = 351,792 lbs of sugar

