

Dairying and the Environment

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Determining the Volume of a Circular Tank

Circular tanks may be used for manure storage, manure flush tipping tanks, or milk storage, etc. and it is important to know how to calculate the available storage volume of the tank for planning and record-keeping purposes.

The following steps will help you to determine the volume of a circular tank:

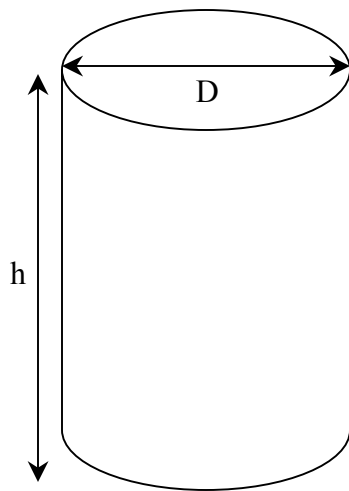


Fig. 1 Vertical Tank

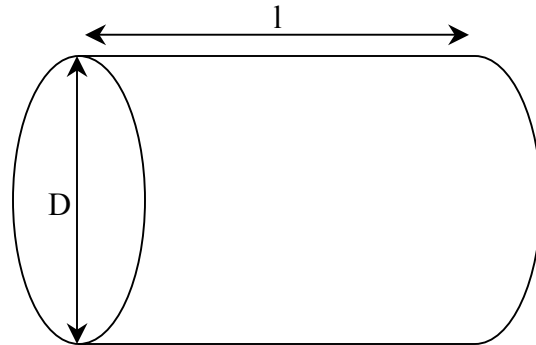


Fig. 2 Horizontal Tank

Step 1. Measure the diameter of the tank (D).

Step 2. Measure the height (h) for a vertical tank or length (l) of a horizontal tank.

Step 3. Calculate the cross-sectional area of the tank using Equation 1.

$$\text{Equation 1: Cross-sectional Area, } A = 3.14 \times D \times D/4$$

Step 4. Calculate the volume of the tank in cubic feet using Equation 2.

$$\begin{array}{ll} \text{Equation 2: Volume in cubic feet} = A \times h & \text{[for a vertical tank]} \\ \text{Volume in cubic feet} = A \times l & \text{[for a horizontal tank]} \end{array}$$

Step 5. Convert the volume of the tank from cubic feet to gallons using Equation 3.

$$\text{Equation 3: Volume in gallons} = (\text{Volume in cubic feet}) \times 7.48$$