Calculating Application Volume

To determine the volume of chemical to be applied, refer to the following equations:

$$GPA = \frac{GPM \times 495}{MPH \times S} \quad \text{or} \quad GPM = \frac{GPA \times MPH \times S}{495}$$

Where:

GPA = Application volume in Gallons Per Acre
GPM = Application volume in Gallons Per Minute
MPH = Tractor speed in Miles Per Hour
S = Application band (row Spacing) width in feet
495 = Conversion factor

To calculate Tractor speed: Divide the distance traveled in feet in one minute by 88.

$$MPH = \frac{\text{Distance covered (ft) in one minute}}{88}$$

Example:

If the required volume is 160 gallons per acre (GPA), the tractor speed is 3 miles per hour (MPH) and the row spacing (S) is 20 feet, to regulate the sprayer we need to find out the flow rate per nozzle per minute (GPM) as follows:

$$GPM = \frac{160 \times 3 \times 20}{495} = \frac{9600}{495} = 19.4 \text{ GPM}$$

19.4 ÷ N (number of nozzles) = GPM/nozzle

19.4 ÷ 16 nozzles = 1.21 GPM/nozzle