



Pump Sizing

Determine the highest amount of fertilizer to be injected during your longest irrigation cycle.

Example: 100 gallons over a full 12-hour period.
Convert the 12 hours into minutes $100/720 = 0.13$
 $0.13 \times 3785 \text{ ml per gallon} = 525.69 \text{ ml per minute}$

This becomes the factor in calibrating and sizing your injection pump. Then multiply milliliters per minute x number of minutes in one hour / milliliters per gallon, as follows:

$525.69 \text{ ml per minute} \times 60 / 3785 = 8.3 \text{ gallons per hour}$

This would be the maximum amount you would be injecting per hour. In this case, the 9-gallon per hour pump would be sufficient to do the injection but would be at the maximum side of the pump. To find what that percentage would be, you would take the 8.3 gallons per hour and divide it by the maximum flow of your pump (9 gph), and would get .92, meaning you would be running your pump at 92% of it's capacity. On the minimum side of this pump, you could go down to .9 gallons per hour.

The main thing is to optimize the pump to what you are trying to accomplish with your applications. In this same case, if you were to use a 30 gph pump, you would be running it at 27% of it's capacity. Although this pump would be operating within the parameters of the pump, it would be over-kill in sizing, but could still be used.

- A. Total Amount (in gallons) to be applied _____
- B. Total Amount of Time to be applied _____
- C. Total minutes (B x 60) _____
- D. Divide A by C and multiply by 3785 _____
- E. Multiply D x 60 divided by 3785 _____
- F. Divide E by the maximum flow of your pump* _____

*This will give you the percentage setting of your pump.