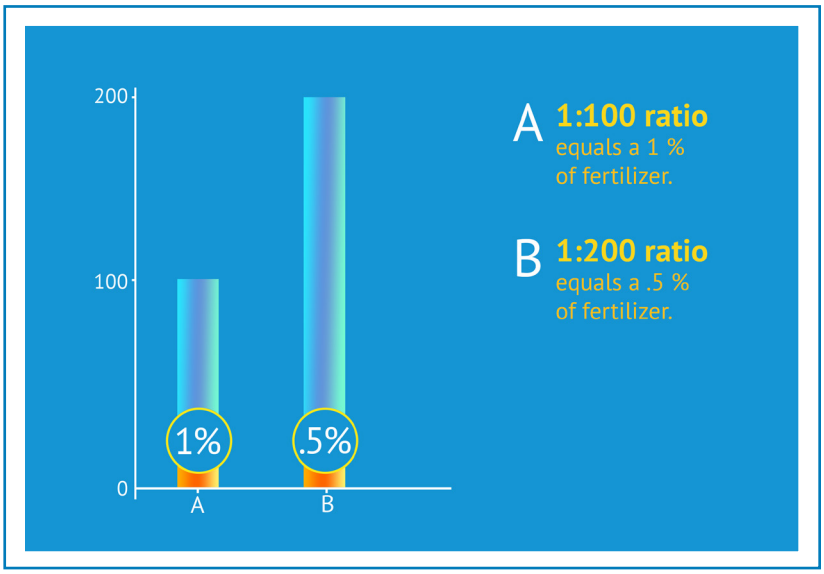
Add-It™ and Caddy™ Fertilizer Injector

How to Calculate the Amount of Fertilizer to Apply with the Add-It™ and Caddy™ Fertilizer Injector

Step 1: What is the fertilizer solution ratio?

For every part of fertilizer solution, there are X parts of water, where "X" is determined by the injector ratio. For example, with a 1:200 ratio 1 part of fertilizer solution is mixed with 199 parts of water, for a total of 200 parts of final mix. Ratios are also expressed in %.

For example:
1:100 ratio equals a 1 percent of fertilizer.
1:200 ratio equals a 0.5 percent of fertilizer.



Step 2: The Add-It & Fertilizer Caddy Injectors are available with proportional ratios of 1: 200

This ratio means that 1 gallon of concentrate fertilizer is added to each 199 gallons of irrigation water. Review how many gallons of water each model uses to empty the tank, (see part# and flow chart).
Fertilizer Injector tank size and how many gallons to empty

- 1-gallon fertilizer tank used to apply 200 gallons of water to empty
- 2-gallon fertilizer tank used to apply 400 gallons of water to empty
- 3-gallon fertilizer tank used to apply 600 gallons of water to empty
- 5-gallon fertilizer tank used to apply 1000 gallons of water to empty

Step 3: Understand the fertilizer information

The fertilizer solution information will help to determine the percentage of the fertilizer nutrient. This information is available with any fertilizer solution with the percentage of nitrogen shown first.

Example: 10-10-10, 20-10-20 or 17-5-24 fertilizer solation. The first number in the three series of numbers is the percentage by weight of nitrogen (N); the second is the percentage of phosphorus (P) as P2O5; and the third is the percentage of potassium (K) as K20.

Step 4: Calculating how much liquid fertilizer to apply

To calculate how much liquid fertilizer needs to apply to deliver the required amount of nitrogen to a specific area, you need to know the following:

Example:

a. If a fertilizer container or bottle weight is 9 lbs,. the volume is 1 gallon and the type of fertilizer is 16-4-8. To be able to accurately weigh the amount of liquid, you need to convert volume to weight. The net weight of the container/bottle is 9 pounds, and the volume is 1 gallon. This means that the fertilizer weighs 9 pounds per gallon.

b. Multiply the weigh/gallon of the liquid fertilizer container by the percentage of the nutrient in decimals.

   i. **Calculation: 9 lbs./gal x .16 = 1.44 lbs. of N per gallon**

c. Desired amount of fertilizer to apply?

- Desired application: 1 lbs. of N per 1000 sq. ft.
- 1 lbs./1.44 lbs. of N per gallon = 0.69444 gallon
- Total area needed to cover: 3200 sq. ft.
- Total amount to apply .69444 x 3.2 = 2.2222 gallon of N per 3200 sq. ft.

We are rounding the amount of 2.2222 to apply to 2 gallons to fit a 2 gallon fertilizer tank

Step 5: Calculating how much liquid fertilizer to apply to a tree farm with 200 trees in an area of 3200 SF with each tree having 2, 4-GPH drippers.

a. Assuming that the wetted area covered by the two 4-GPH drippers is 16 sq.ft per tree.
b. Total of 200 trees x 16 sq. ft. = 3200 sq. ft. of area
c. Total system flow rate is 1600 GPH or 26.6667 GPM.
d. From step two, 2-gallon Add-It fertilizer tank use to apply 400 gallons of water to empty
e. 400 gallon/ 26.667 = 15 minutes.

f. It will take 15 minutes to apply the rounded 2 gallons of N using 16-4-8 fertilizer

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