

# GROWERTALKS

## Features

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## Mixing It Up

*Cliff Hoogland*

Fertilizer recommendations are given in parts per million of nitrogen or as an amount per gallon of finished solution. For example, you may use a 15-5-15 fertilizer on tomatoes to supply nitrogen at a concentration of 200 ppm. For this, we normally use a fertilizer injector and make a concentrated fertilizer solution. To do this, you must determine how much of the fertilizer to put in the concentrate tank so the injector gives the desired concentration in the irrigation water. (For rates in tablespoons per gallon, go down to “Testing accuracy of the injector” for directions.)

### Calculating for the injector

Fertilizer injectors take fertilizer solution out of a concentrate tank and inject it into the irrigation water. If the injector ratio is 1:100, this means 1 gal. of fertilizer concentrate is added to each 100 gal. of irrigation water.

### Example 1

You want to give tomato seedlings 200 ppm N using a 15-5-15 water-soluble fertilizer and an injector set at 1:100.

On the bag of fertilizer is this chart:

Feed Rate	EC	1:15	1:100	1:200
Nitrogen	(mmhos)	Ounces/gallon of Concentrate		
50 ppm	.37	.68	4.5	9
100 ppm	.74	1.35	9	18
200 ppm	1.48	2.7	18	36

16 oz. to a pound, 5 lbs., 10 oz. of fertilizer to my 5-gal. bucket and fill with water.

If we look at where the 1:100 and the 200 ppm meet, we can see that we need to add 18 oz. (by weight) to a gallon of water to make the needed concentrate. I normally use a 5-gal. bucket with my injector, so we would add (5 x 18) 90 oz. of fertilizer or since there are

### Example 2

What if you wanted 225 ppm N? Divide the 1:100/50 ppm amount in half and add it to the 200 ppm amount.

$4.5/2 = 2.25 + 18 = 20.25$  oz. per gallon of concentrate

### Testing accuracy of the injector

You should test your injector at least once year, especially if you haven't used it in a while or you haven't replaced wear parts in awhile. Hozons and other siphon injectors should be tested before use. Due to variations in manufacturing, the injection rate will vary.

- Use a measuring cup in the 6-cup range.
- Fill with water and drop the suction hose in. (Use the same setup as you'll use to water/fertilize your plants with.)
- Fill a 5-gal. bucket. (Make sure you do this near the faucet, as shutting the water off at the end of the hose might send water back into the concentrate container.
- When the 5-gal. bucket is full, shut off the water and note how much water was sucked out.

Take 640 (128 oz. to a gallon, 5 gal. x 128 = 640 oz. in 5 gal.) and divide by the number of ounces sucked out of the measuring cup. This will give you the second number to the 1:X ratio. For example, if a Hozon sucks 35.5 oz. out of the measuring cup after filling a 5-gal. bucket, it will be injecting 1:18 (640 divided by 35.5).

Once you know the injection rate, you can go about figuring a concentrate another way. Say you wanted to water transplants in with 9-45-15 at the rate of 2 tbsp. per gallon. Times the rate by the second number of the ratio. For our Hozon, this is 18 or for an injector set to 1:100, times by 100.

So if we're using our Hozon that injects at 1:18, which we found with our accuracy test, 2 tbsp. times 18 gives us 36 tbsp. per gallon of concentrate. If we use a 5-gal. bucket, it would take 180 tbsp. of fertilizer to make 5 gal. of concentrate. Don't want to count to 180? Use the following:

2 tbsp. = 1 oz.  
2 oz. = ¼ cup  
8 oz. = 1 cup

180 tbsp. = 11¼ cups of fertilizer in the 5-gal. bucket and fill with water. After running through the Hozon, you'll have 90 gal. of fertilizer. **GT**

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*Cliff Hoogland is Phytotronics Manager for Hummert International.*