



Water Filters: The Choices Are Crystal Clear!

by Richard Gellert

❖ The previous article explained the importance of using pure water as a base for a successful feeding program. Starting with clean water for your nutrient formula ensures explosive results in all types of gardening and hydroponics. Also discussed were the various contaminants that can be present in your water and the damage they can do to your prized crops. Now that you know purified water is the base you want to start with for any feeding of your plants, which type of water filter is the right one for you?

The proper filter for your situation depends on the source water. A good place to start is having your water tested to determine several important values that affect water quality. The previous article mentioned several sources of obtaining your water's readings, and your local indoor gardening shop may be of great help. The ppm (parts per million) of your TDS (total dissolved solids) is going to be very telling. Any values over 150 ppm and you are merely guessing at what hides in your water. But ppm is only part of the story. What this ppm is made up of is the other part.

There are a variety of contaminants that you can read on a ppm pen. Hardness is usually a large part of the total ppm you're reading. Hardness is the amount of dissolved calcium and magnesium in your water, and too much of these can create all sorts of problems, the main one being nutrient lockout. Usually measured in grains of hardness per gallon, GPG, each GPG equals 17.1 ppm of hardness. Starting with very low values of these minerals is the best way to ensure proper feeding and healthy plants.

The other part of the ppm reading is sediment, rust, chlorine, chloramines, iron, sulfur, volatile organic compounds, and, to a lesser degree, heavy metals and pesticides. These nasty pollutants should be kept far away from your prized plants and fruits. If you don't drink your tap water, then you probably shouldn't be giving it to your plants.



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Fortunately, many hydroponics shops have choices of water filtration systems to help you deal with your particular problems. Take a look at the table below to determine what type of filter may suit your needs best:

You can see that a reverse osmosis system can remove all of the contaminants and seems like the best choice, though if you have extremely hard water (12+ grains per gallon or 200+ ppm calcium), then a softener is recommended to pre-treat the

water before going into an RO filter. The softener does a great job at quickly and efficiently removing hardness, making it much easier for the RO machine to clean the rest of the pollutants.

Softeners exchange calcium and magnesium for sodium chloride (table salt), which is harmful to plants but easy to remove with reverse osmosis. Potassium chloride can be substituted for salt and is tolerated by plants, but it is twice the price of sodium chloride. The potassium levels end up being a bit high for delicate plants, so a reverse osmosis system is recommended afterwards for the ultimate in pure water.

Carbon and sediment filter systems are essentially instant dechlorinators and dirt removers. You will normally not see a huge drop in ppm like you will with a reverse osmosis filter. If the ppm is primarily sediment, chlorine, and organic compounds, then a reduction in ppm can be seen, but that is not the primary purpose of these machines. Most dechlorinators have higher flow rates than typical RO filters and are priced more affordably. They remove 99

	WHICH FILTER WORKS BEST?		
	SEDIMENT FILTER	DECHLORINATOR	REVERSE OSMOSIS
Chlorine and Chloramines	●	●	
	●	●	
Volatile Organic Compounds	●	●	
	●		
Removes 98%+ Bacteria	●		
	●		●
Helps Stabilize pH	●		●
	●		●

●

pure water's not magic. it's logic.

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percent of harmful chlorine and 85 percent+ of chloramines to ensure that the living microbiology (beneficial bacteria, fungi, trichoderma, etc.) in your nutrient solution, and in the soil and root zone, remains healthy and thriving.

If you want to remove not only chlorine and sediment but also everything else, then a reverse osmosis filter is what you need. Reverse osmosis technology is the ultimate solution if lowering your ppm is the primary concern. A good RO machine is capable of removing 95 percent of everything in your water, producing soft, pure H₂O.

The heart of an RO machine is the membrane, which does the majority of the purifying. Most membranes are designed to last two to four years, depending on the quality of the source water and frequency of pre-filter changes. Most reverse osmosis machines can handle a maximum hardness of seven to 10 grains per gallon and a TDS of 1000 ppm. If your water is much harder than that, either invest in a softener or be prepared to change membranes more often.

There are several specialty filters available to deal with particularly nasty situations. Some people on well water experience high sulfur levels, indicated by a typical “rotten egg” smell and taste. High levels of iron can also require specific pre-treatment. An overabundance of either of these can be harmful to plants and humans, and a water-conditioning expert in your area should be consulted.

So, don't be afraid of the unknown pollutants hiding in your water. Find out what those contaminants are and use the above guide to help you find a solution. Many hydroponics shops carry a variety of water filters capable of helping with your water problems. Most of these shops can be very helpful in determining which is the correct filter for you and your plants.

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