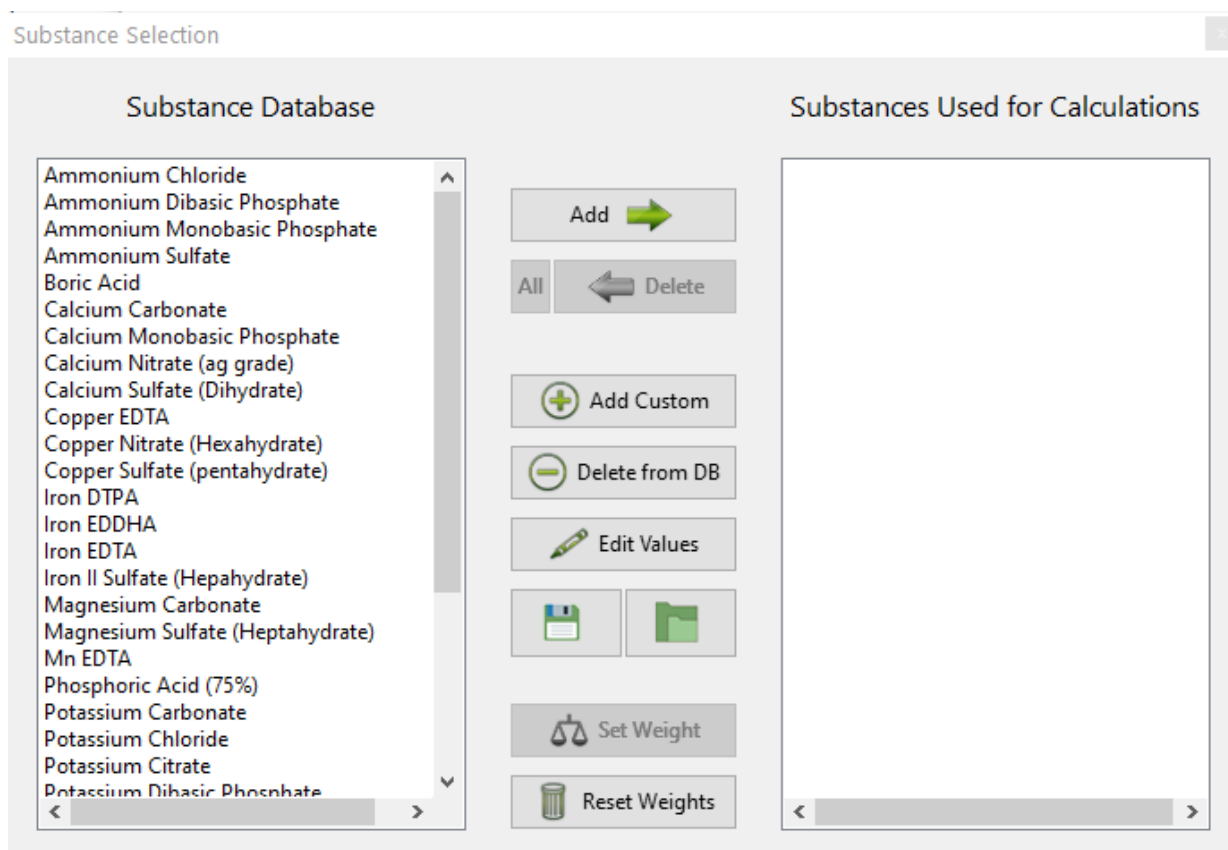


About the default fertilizer database in HydroBuddy

Hydrobuddy is an open source calculator that seeks to help growers create their own hydroponic nutrient solutions. In order to do this, the program includes a database with a list of curated fertilizers that should be a good starting point for those interested in making their own nutrients. However, why these salts are included might not be clear to most growers, so I wanted to create a blog post to explain my reasoning behind this particular repository and the purpose each one of these different salts might serve. It is also worth noting that the default list of nutrients is not by any means definitive – for example no silicon containing substances are included – so users are welcome to add their own substances using the “Add Custom” option and entering the composition of the fertilizer they want to add.



The HydroBuddy “Substance Selection” screen (v1.8) showing

some of the nutrients in the default database

The idea of the database that comes with HydroBuddy is to allow you to create several types of nutritional tools, using different types of approaches. The table below shows you what each one of the substances contributes in terms of nutrition, as well as its qualitative effect on the pH of the solution and what its most popular use is. While some of these substances – such as Potassium Sulfate – are mainly intended to be used as part of the main nutrient solution, others such as Potassium Carbonate, are not intended to be used in this manner but they are intended to be used as buffering agents when doing pH adjustments or creating concentrated pH up/down buffering solutions. There are also substances like – like Ammonium Chloride – that are not intended to be used for either of these purposes but mainly for supplementing a nutritional component, in this particular case, N as ammonium.

The main nutritional use of substances is also dependent on what the end-user has in mind. For example when a user wants to create a concentrated stock solution, substances such as Calcium Sulfate or Zinc Sulfate might not be very useful – due to their limited solubility or stability – while for users who want to create final solutions by direct addition of salts, these substances might be the best potential choice. Several different substances are provided for some nutrients to allow for this type of flexibility.

Another important factor can be cost, sometimes this is a more important factor than other considerations, such as which nutrient is the absolute best from a botanical perspective. This is part of the reason why – for example – 4 different forms of iron are present within the default database, this way users can see how much iron they would require from different sources and – depending on their particular application and cost range – make a decision about which iron source might be optimal. This also allows a user to consider using a cheaper source of iron – like Iron II Sulfate

Heptahydrate – and then preparing their own chelates using a chelating agent, such as disodium EDTA.

Name	N1	N2	P	K	Mg	Ca	S	Fe	Mn	B	Zn	Cu	Mo	Cl	Na	Use	pH effect
Ammonium Chloride																S	↓
Ammonium Dibasic Phosphate																MN	↑
Ammonium Monobasic Phosphate																MN	↓↓
Ammonium Sulfate																MN	↓
Boric Acid																MN	↓
Calcium Carbonate																B	↑↑
Calcium Sulfate (Dihydrate)																MN	
Calcium Nitrate (ag grade)																MN	↓
Copper EDTA																MN	
Copper Nitrate																MN	
Copper sulfate																MN	
Iron DTPA																MN	
Iron EDDHA																MN	
Iron EDTA																MN	
Iron II sulfate (heptahydrate)																MN	
Magnesium Carbonate																B	↑↑
Magnesium Sulfate (heptahydrate)																MN	
Mn EDTA																MN	
Phosphoric Acid (75%)																B	↓↓↓
Potassium Carbonate																B	↑↑
Potassium Chloride																S	
Potassium Citrate																B	↑↑
Potassium Dibasic Phosphate																MN	↑
Potassium Monobasic Phosphate																MN	↓↓
Potassium Nitrate																MN	
Potassium Sulfate																MN	
Sodium Borate																MN	
Sodium Molybdate																MN	
Sodium Nitrate																S	
Zinc Nitrate (Hexahydrate)																MN	
Zinc Sulfate (Monohydrate)																MN	
Zn EDTA																MN	

This table shows all the salts included in the default HydroBuddy database (v1.8). N1 is N as Ammonium, N2 is N as nitrate. MN = Main nutrition, B = Buffering, S = Supplementation

For those with experience in hydroponic nutrient solutions it will be clear that many commonly used substances are missing – such as Magnesium Nitrate, Potassium Silicate, Nitric acid, Sulfuric acid, etc – these were present in previous versions of the software, but the abundance of choices was confusing to newer users, especially when they couldn't easily get their

hands on many of these fertilizers from a practical perspective. Some nutrients, like urea, were specifically removed because of the larger potential to cause more harm than good when used in hydroponics. The modifications to the database seek to solve these issues by providing a more condensed, yet very flexible list, that users can more effectively leverage to create their own solutions. *However, remember that you can add any substance you want by using the "Add Custom" button in the substance selection screen.*

As you can see many considerations go into creating nutrient solutions and this database is a very generic attempt to provide you with the best tools to get you started in this world. However, if you find this task difficult or you would simply like to have additional help and guidance, feel free to book an hour of consultation time by using the booking function on the website or contacting me directly through the [contact page](#).