

Water Conditioning

Guideline to Calculate Choice Weather Master dose:

Hardness (expressed as CaCO₃ in ppm) X 1 = Number of mL per 100 L

Example: 300 ppm X 1 = 300 mL / 100 L = 3L / 1000 L



Hardness	mL / 100 L	L / 1000 L
300 ppm	300	3
400 ppm	400	4
500 ppm	500	5

Conversion of Gallons to Litres

1 U.S. gallon = 3.785 L

1 IMP gallon = 4.456 L

Choice Weather Master offers convenience



1 jug of Choice Weather Master =



10 jugs Ammonium Sulfate

WATER QUALITY and PESTICIDE PERFORMANCE



pH Adjustment

- Acidifier
- Penetrant
- Deposition aid
- Drift control agent



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Ontario & Maritimes 1-800-265-5444

Prairies 1-800-561-5444

Quebec 1-800-361-9369

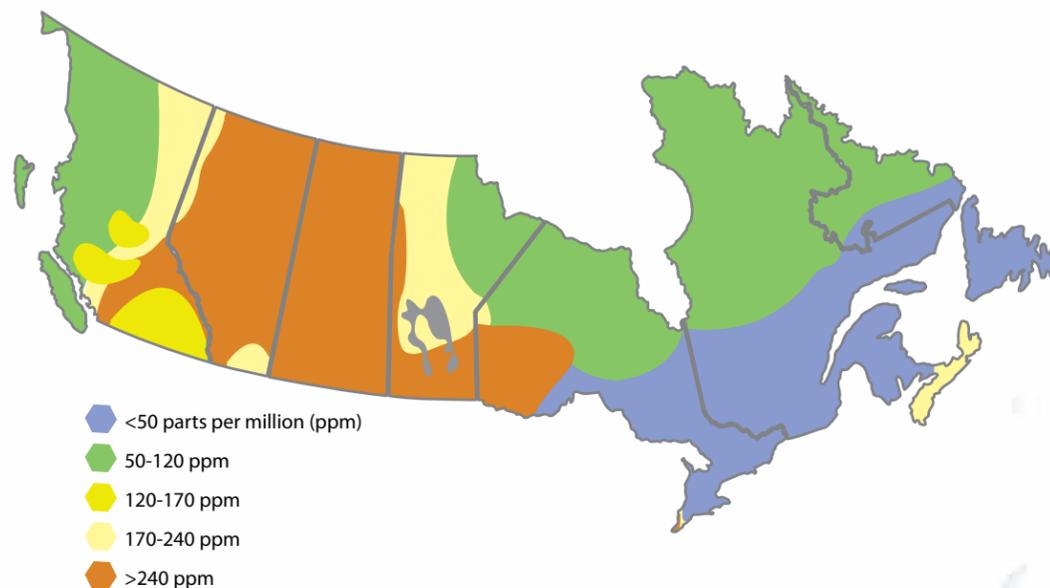
British Columbia 604-534-8815



Water Quality Issues and the Effect on Pesticide Performance

There are many factors that can affect pesticide performance, but one that is often overlooked is water quality. Water is the primary carrier for pesticide application and makes up over 90% of most spray solutions. Every effort should be made to get the most return from your pesticide investment, so be aware of the effect that water quality can have on pesticides. First understand what potential issues your water sources may have, then take the necessary steps to correct the issues of water quality.

Who is affected by hard water?



This map represents **average** hardness of an area. Please test your water, as your water quality may differ.

Understanding water quality and the potential issues your water sources may have

Water Hardness

Defined: Water hardness is a measure of the total concentration of hard water ions, primarily calcium (Ca^{2+}) and magnesium (Mg^{2+}), which is often expressed as parts per million (ppm), grains per gallon, or milligrams per liter. Other hard water cations are sodium, iron and aluminum.

Problem: Hard water cations react with certain pesticides, especially herbicides, thereby reducing overall pesticide efficacy. Products most affected (but not limited to) are weak acid herbicides like glyphosate and 2,4-D.

Solution: Using a water conditioner such as Choice® Weather Master (*see back page*) that combats all the hard water cations that negatively affect weak acid herbicides, unlike AMS that only combats calcium cations.

pH (Alkalinity)

Defined: pH is the value that describes the relative acidity or alkalinity of any solution. $\text{pH} > 7$ - basic, $\text{pH} = 7$ - neutral, and $\text{pH} < 7$ - acidic

Problem: Water pH plays an important role in the stability and efficacy of pesticides. A pesticide can begin degradation or breakdown the moment it is introduced to the spray solution. This process is called alkaline hydrolysis, which is permanent and irreversible. Alkaline hydrolysis, a process that breaks the bonds holding pesticides together, can reduce the life of a pesticide in solution and is significantly affected by water pH. Stability is usually referenced in terms of "half-life". It is the time required for degradation to 50% of the original amount of the pesticide. Products most affected are insecticides.

Solution: Use a pH reduction agent such as LI 700® (*see back page*) that will reduce the pH of the spray solution to around 5 which, in most cases, will take care of any disassociation issues. Do NOT reduce the pH of the spray solution when using sulphonylurea chemistries.

Turbidity

Defined: Water turbidity is a measure of the Total Suspended Solids (TSS) as opposed to Total Dissolved Solids (TDS), often associated with various salts.

Problem: Turbidity can reduce the effectiveness of pesticides.

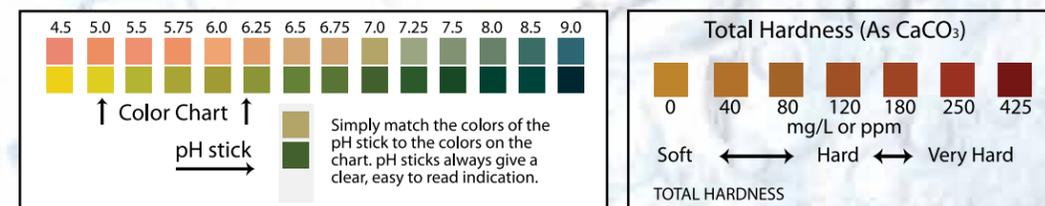
Solution: Water should be clean and clear of all suspended solids for all pesticide applications. Using a water conditioner such as Choice Weather Master (*see back page*) will help reduce the negative affects that the TDS may have on the pesticide's performance.

TESTING your WATER is as easy as 1-2-3

- Determine the water source that you want to test.
- Determine what testing method you would like to use and test it or send it in for testing.

Methods:

 - Simple Test Strips (as pictured below) that measure only pH or only water hardness or a combination of both.
 - Send water samples to a certified lab.



- Determine the right product to use to correct the water quality issues you might have.

Things to remember:

- If you are using well water, as the season progresses, the water quality may change, so it is important to test your well 2-3 times a year.
- Measurements of hardness are given in terms of the calcium carbonate equivalent (CaCO_3), which is an expression of the concentration of hardness ions in water in terms of their equivalent value of calcium carbonate. This number represents all hard water cations, but some labs can and will break these out to each individual cation.