

PACKAGING

Bio pH Control
is delivered in 10 l
jugs or 1000 l
IBC containers



BioNutria
DANMARK



Bio pH Control

– for problems with hard water

Hard water is a big and expensive problem many places in Scandinavia and Eastern Europe. Water hardness is determined by a number of cations, but the two that create the biggest problems are Calcium (Ca) and Magnesium (Mg). The reason these two are in focus is they produce deposits in the sprayer when precipitated from the spray liquid. Since they both bond with CO₃, the water pH is high.

We have worked intensively on developing the product Bio pH Control. The product composition ensures that the pH in the spray liquid is lowered and the harmful effects of CaCO₃ and MgCO₃ are neutralised.

Traditional pH-lowering products are composed of one or two active ingredients. Bio pH Control contains four active ingredients/additives which, in addition to lowering the pH, ensure that both pesticides and micronutrients are absorbed by the plants quickly and effectively. The additives are unique to Bio pH Control. Practical experience shows that pesticide use can be reduced by 30% when hard water is treated with Bio pH Control.

Several BioNutria products come with Bio pH Control pre-mixed; these are: Bio Mangan 170 NS^P, BioCrop Opti^P and BioCrop Potato^P. Depending on the water hardness, it may be necessary to add extra Bio pH Control, to ensure the optimal pH and thus reap the full effect of both pesticides and micronutrients.

Not all pesticides work optimally at a low pH. Therefore, always know the optimal pH for the pesticides you are using. Then adjust the spray liquid's pH to the optimal level using Bio pH Control.

We recommend buying a pH meter. It costs a couple thousand kroner and may end up being a very good investment.

Getting started with Bio pH Control

If you have hard water, you are sure to have deposits in your sprayer, even if you use sprayer cleaner. Most – if not all sprayer cleaner products – are alkaline and do not clean/dissolve Ca and Mg deposits.

Therefore, it is very important to clean the sprayer effectively with Bio pH Control before using Bio Mangan 170 NS^P, BioCrop Opti^P and BioCrop Potato^P, and before starting the actual spraying.

Cleaning the sprayer

1. Pour 200–400 L of water in the sprayer.
2. Add 0.5 L Bio pH Control/100 L water and let it circulate in the sprayer for 30 minutes.
3. Remove nozzles and filters and then flush out the liquid.
4. Repeat the process if necessary.

After cleaning, the sprayer is just as clean inside as a new sprayer.

How to use Bio pH Control when spraying BioNutria micronutrients and pesticides

1. Pour the desired amount of water in the sprayer and start mixing.
2. Add Bio pH Control in the recommended dose – normally between 0.10–0.30 L/100 L water.
3. Add BioNutrias micronutrients (but not boron).
4. Add pesticides (Betanal can also be used without any problem).
5. Add boron (where needed).

You are welcome to contact our Agro Team with any questions you may have; for contact information, see bionutria.dk





BioNutria
DANMARK
Growth

pH in water for spraying

By finding the pH of your waterworks, you can assess whether it is a good idea to use pH-regulating additives.

For most plant protection products, a pH of between 4 and 6 in the spraying liquid will be optimal. Some products rapidly degrade at high pH, that is above 8. For example, phenmedipham has a half-life of only 7 minutes at pH 9.

The table shows the half-life of a number of active substances at different pH levels. At the top of the table are active substances that are least stable at high pH, and at the bottom are active substances that are least stable at low pH. There is no pH value that is optimal for the stability of all active substances. The pyrethroids and phenmedipham (Betanal) are particularly unstable at high pH and tribenuron-methyl (Express) is unstable at low pH.

The table shows the half-life at 20–25 °C for a number of active substances at three different pH values (d indicates days, h indicates hours and min indicates minutes). At the top of the table are active substances that are least stable at high pH, while at the bottom are active substances that are least stable at low pH.

Active ingredient	Example of agent	pH 5	pH 7	pH 9
alpha-cypermethrin	Fastac 50	Stabil	101 d	7,3 d
cypermethrin	Cyperb 100	Stabil	179 d	21,2 d (cis)* 9,1 d (trans)*
deltamethrin	K-Othrine SC 25	Stabil	Stabil	2,5 d
gamma-cyhalothrin	Nexide CS	Stabil	136 d	1,1 d
lambda-cyhalothrin	Karate 2,5 WG	Stabil	Stabil	7 d
ethephon	Cerone	9,9 d	2,5 d	1,4 d
fenoxaprop-P-ethyl	Primera Super and Foxtrot	19,2 d	23,2 d	17 h
fluroxypyr	Starane products and others	Stabil	223 d	3,2 d
metamitron	Goltix agents	353 d	480 d	8,5 d
phenmedipham	Betanal agents	47 d	12 h	7 min
flupyrsulfuron-methyl	Lexus, Absolute 5	44 d	12 d	0,4 d
tribenuron-methyl	Express, Nuance and others	1 d	16 d	Stabil
thifensulfuron-methyl	Harmony	5 d	180 d	90 d
foramsulfuron	MaisTer	10 d	128 d	132 d
sulfosulfuron	Monitor	48 d	156 d	Stabil
metsulfuron-methyl	Ally, Accurate and others	22 d	Stabil	Stabil
iodosulfuron-methyl	Hussar, Hussar Plus, Cossack	31 d	365 d	365 d
mesosulfuron-methyl	part of Atlantis, Othello, Hussar Plus and Cossack	7,2 d	253 d	318 d

Source of the above information: Agricultural info

If the water from your water supply or waterworks in the area is higher than 6–7 pH, then using acidifying additives will be beneficial.

Note that mixing partners, especially micro-nutrients, may affect the pH of the spraying liquid in some cases. It may be a good idea to buy a pH tester.

Hardness

You can find information about the water hardness in your area at municipal level.

Hard water contains many calcium and magnesium ions, which can bind many active substances such as glyphosate and clopyralide.