

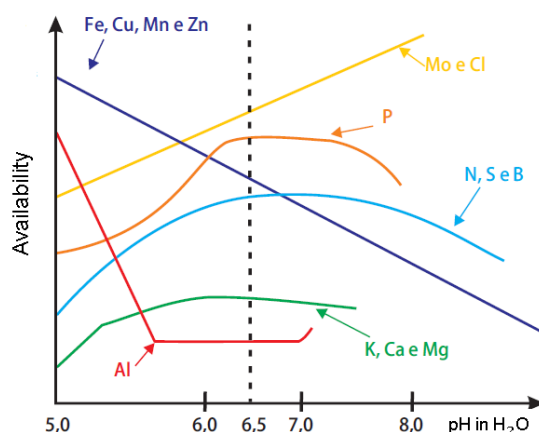
# BIOCOMPIG

*Supplier of pelletized organic fertilizers*

WinCal is a slow release lime fertilizer based on Calcium carbonate. WinCal is a hard round micro granule and insoluble in water. Due to its hardness WinCal is ideal for using with spreading machines and no damages occur during transport or storage for longer periods. Due to its insolubility the product can even be stored in bulk outside in the open air without losing its quality nor will it form any lumps.



Due to its high content of calcium carbonate (> 97%  $\text{CaCO}_3$ ) WinCal will neutralize acids and consequently raise the pH. The pH value is especially important for the availability of certain nutrition elements, especially for Phosphates, Sulphates, Nitrogen and Boron (see graphic here beside). Consistent liming is therefore crucial for a healthy crop.

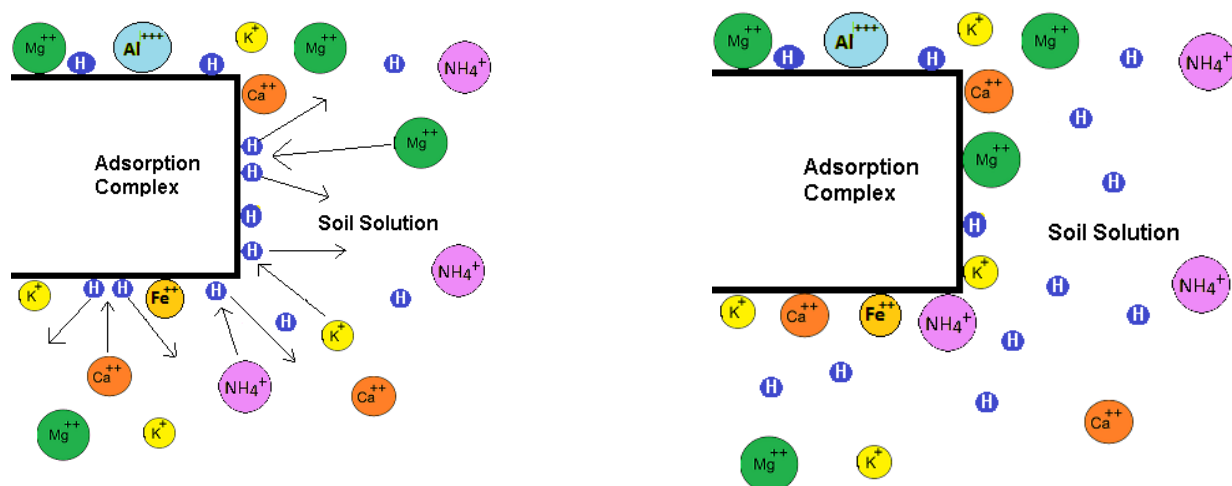


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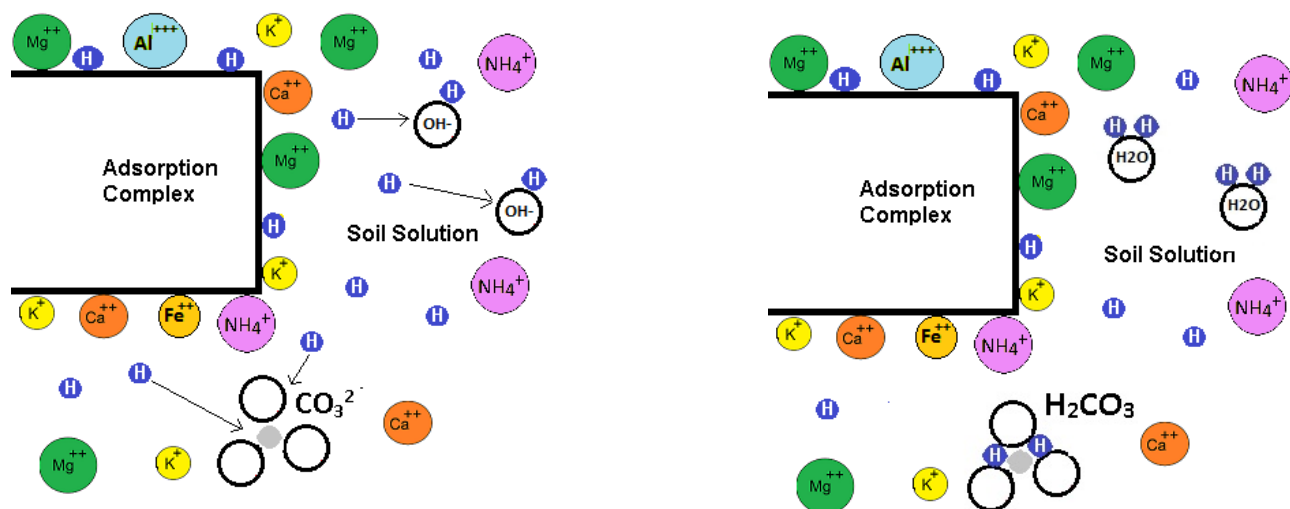
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## How does it work

After an application of fertilizers or lime, the balance in the soil solution is disturbed and it will cause a shift on the occupancy on the adsorption complex (clay or organic matter) and the soil solution. The new available cations  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{K}^+$  and  $\text{NH}_4^+$  in the soil solution will replace  $\text{H}^+$  protons on the adsorption complex and a redistribution of the amounts of Ca, Mg, K and  $\text{NH}_4^+$  will take place (see figures hereunder).



In contrast to many people think, Ca and Mg do not cause increase of pH in the soil solution, but the alkali ions such as carbonates ( $\text{CO}_3^{2-}$ ), oxides ( $\text{O}^{2-}$ ) hydroxide ( $\text{OH}^-$ ) or silicates ( $\text{SiO}_3^{2-}$ ) causes the pH raise. The alkali ions react with the free available  $\text{H}^+$  (acids) forming new molecules and extracting the  $\text{H}^+$  protons from the soil solution (see figure hereunder). As the acid are bonded with the alkali the pH will raise forming better conditions for the uptake of other plant nutrition elements and prevent leaching of the cations.





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