

10 April 2016

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Fundamentals of Soil Science

4.7. Effect of Soluble Salts on Soil *pH*

Saline soils have sufficient soluble salts to impair plant growth, mainly by increasing the osmotic pressure of the soil solution and restricting water uptake. Soluble salts may accumulate naturally in soils in arid regions or as a result of the addition of irrigation water. Excessive use of soluble fertilizer salts produces saline soils and is a particular problem in managing greenhouses. The major potassium fertilizer is *KCl*. Its hydrolysis produces both a strong base, *KOH*, and a strong acid, *HCl*, which are about equal in their ability to produce H^+ and OH^- . Saline soils tend to have a *pH* at or near 7 because of the hydrolysis by soluble salts.

KCl

KOH

HCl

OH^- H^+

pH

References

Foth, H. D. 1978. Fundamentals of Soil Science. John Wiley & Sons, New York, USA

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