



Lime-Induced Chlorosis

Fruits grown in very alkaline or chalky soils with a pH of 7.0 or above may suffer from iron or manganese deficiencies or both, resulting in chlorosis. With the exception of blueberries and cranberries, the ideal soil for fruit should be slightly acid (about pH 6.5). Blueberries and cranberries require a soil with a pH of 4.5.

DAMAGE:

Iron deficiency can be distinguished from manganese deficiency by the fact that the former shows first by the yellowing of the new leaves, whilst the latter shows first as a yellowing of the older basal leaves. Manganese deficiency usually occurs on soils that have a high organic matter content, whilst iron deficiency occurs on soils that are low in organic matter. Where the soil has fallen to pH 5.5, growth of bushes can be expected to be poor and below pH 5.0 they could fail altogether.



Manganese deficiency in raspberry



Iron deficiency in raspberry

CONTROL:

The soil's acidity or alkalinity level, should be measured with a pH meter or soil-testing kit, which is available from most garden centres.

The long term solution is to reduce the alkalinity of the soil, either slowly by applying nitrogen in the form of sulphate of ammonia or quickly by the application of ground sulphur (Flowers of Sulphur). The quantity of sulphur required varies according to texture, type of soil and by how much the pH is to be reduced. Applications should be made in accordance with the following table:

pH	Light sandy soil		Sandy loam		Heavy clay soil	
	g/m ²	oz/yd ²	g/m ²	oz/yd ²	g/m ²	oz/yd ²
8.0 to 6.5	100	3	200	6	300	9
7.5 to 6.5	70	2	140	4	200	6
7.0 to 6.5	36	1	70	2	100	3

The sulphur should be mixed with the soil by forking or rotavating to a depth of 15-20 cm (6-8 in). If it is impossible to do this because too many roots would be destroyed, the application should be spread over three years. The soil should be tested one and two years later to check that the soil pH has been reduced to the correct level. It would be too expensive to acidify a soil in which free lime or chalk is present. Flowers of Sulphur can be obtained from Ken Muir. Temporarily, deficiencies can be remedied by the application of sequestered iron or manganese to the soil each February. However, this is expensive in comparison with Flowers of Sulphur.