

COMMON SYMPTOMS OF NUTRIENT DEFICIENCIES IN ORNAMENTAL PLANTS

NITROGEN



Left, symptoms on *Fraxinus*: the base of leaflets turn yellow.

Below left, older leaves turn yellow on *Amelanchier* planted in fresh mulch.

Below right, on a *Picea* recently fertilized, the older needles are still showing stunted growth.



PHOSPHORUS

Right, typical symptoms on *Acer*: older leaves become overall red colour.

Phosphorus deficiency is seldom seen, except plants grown in greenhouses or grown in soils with low organic matter.



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POTASSIUM



Left, typical symptoms on spruce: off-colour on older needles (usually previous year).

Above, older needles are yellow on *Picea glauca*. Below, older needles are purple on *Picea pungens*.

Below right, symptoms on broadleaf: yellowing starts on the outside, leaf edge is brown similar to water stress.



MAGNESIUM

Right, typical symptoms on *Ulmus*: older leaves are pale green while veins remain dark.

On conifers, older needles are overall yellow.

This deficiency is seen in June rather than in early spring.



SULPHUR

Left, typical symptoms on a *Pinus*: on newer needles, the tips are yellow.

On broadleaf trees, newer leaves are overall pale yellow.

ZINC

Right, typical leaf symptoms:
newer leaves are pale green while
veins remain dark green.

Below, blind wood (buds fail to
open) with small size leaves.

Zinc deficiency is seen in soils with
high pH or high calcium content.
Both pictures show *Prunus* trees.



MANGANESE

Below, typical leaf symptoms:
old leaves are pale green with dark veins.

Right, symptoms are similar, but on older
leaves (manganese) or newer leaves (zinc).

Both pictures show *Acer* plants.



IRON



Left, typical leaf symptoms: newer leaves are yellow to bright yellow while veins are dark green.

Below, iron chlorosis on a Rhododendron growing near a wall. This situation is often called "lime induced chlorosis" as calcium released from cement interferes with iron uptake by the roots.

Each plant nutrient has characteristic deficiency symptoms.

However, it is common for multiple nutrients to be deficient at the same time. The symptoms become mixed and it is more difficult to make an accurate visual diagnostic.

Below are two such examples.



MIXED DEFICIENCIES



Left: *Cornus*
Deficient in zinc and manganese.



Right: *Acer*
Deficient in iron, zinc and manganese.

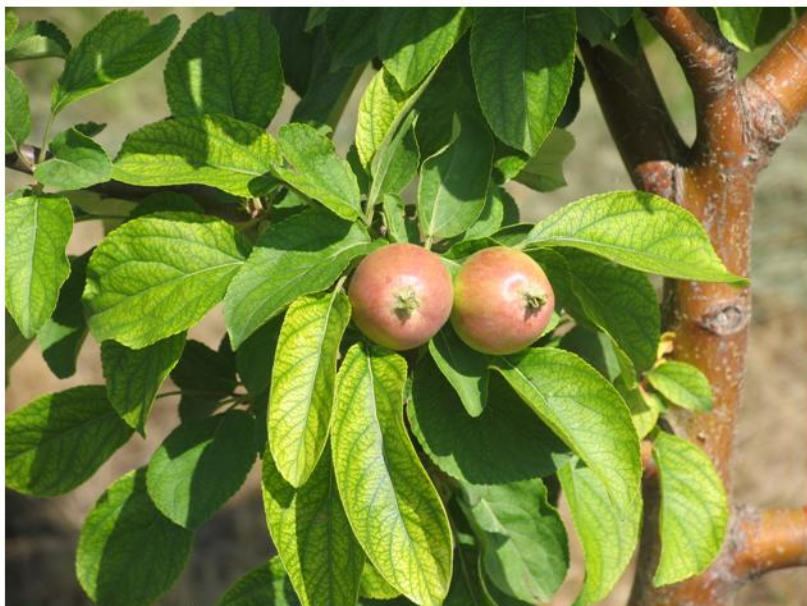
BORON

Right, typical leaf symptoms: newer leaves are deformed and the tip aborts.

Boron deficiency is common in food production (tree fruit, grapes, vegetables) but much less common in ornamental plants.



TEST YOUR SKILLS



MALUS Interveinal light green on the newer growth

SYRINGA Interveinal light green on newer growth



Top: zinc deficiency. Bottom: zinc deficiency.

TEST YOUR SKILLS



SORBUS Interveinal light green plus brown edges

POPULUS Interveinal yellow on newest growth, but newer and older leaves are green



Top: Iron and potassium deficiencies. Bottom: Iron deficiency, plant was fertilised, new growth is green.