Periodic Table of Plant Health

Primary macro-nutrients

7 N Nitrogen

- Synthesis of proteins and chlorophyll
- Chlorosis of older leaves / slow growth
- Too much run off / under feeding

15 P Phosphorus

- Synthesis of DNA and energy production
- Purpling of leaves
- Excess calcium / high pH

19 K Potassium

- Enzyme activity, cell turgor, stomata control
- Chlorosis at leaf tip and edges
- Unfertilised growing media. Excess run off

Secondary macro-nutrients

16 S Sulphur

- Protein synthesis, chloroplast function, Photosynthetic energy conversion
- Light green leaves
- Using granular fertilisers that do not contain sulphur

20 Ca Calcium

- Cell wall structure, and cell division in growing points
- Blackening of new buds / fruits
- Inconsistent water availability / acidic pH / using liquid fertilisers lacking calcium

12 Mg Magnesium

- The central atom in the chlorophyll molecule
- Interveinal chlorosis of OLDER leaves
- Excess calcium or potassium

Micro-nutrients

26 Fe Iron

- Component of the chlorophyll molecule
- Chlorosis of YOUNG leaves
- High pH

5 B Boron

- Numerous functions in flowering, fruiting, and metabolism
- Symptoms only visible when flowering/seeding
- Using cheap fertiliser on inert media

25 Mn Manganese

- Chloroplast formation
- High pH

30 Zn Zinc

- Auxin synthesis and functioning of numerous enzymes
- Interveinal chlorosis, grey brown spots
- High pH (not as extreme as iron)

42 Mo Molybdenum

- Functioning of enzymes involved in nitrogen metabolism
- Low pH

29 Cu Copper

- Photosynthesis, enzyme functioning, lignin synthesis
- High pH (not as extreme as iron)

17 Cl * Chlorine

- Osmotic functioning
- Near impossible to be deficient

11 Na * Sodium

- Only essential in plants possessing C4 (e.g. bermuda grass & Zoysia) and CAM (e.g. Cacti) photosynthesis. Toxic when applied to most plants
- Near impossible to be deficient

28 Ni * Nickel

- Urease activity
- Near impossible to be deficient

Non-mineral nutrients

6 C Carbon

Obtained from the air (CO_2)

1 H Hydrogen

Obtained from water (H_2O)

8 O Oxygen

Obtained from air and water

Non-essential elements

14 Si Silicon

Not essential for plant survival, but major benefits to stress tolerance and physical strength

34 Se * Selenium

Required for grazing animal health, but not plants

27 Co * Cobalt | 23 V Vanadium | 22 Ti Titanium

Some reports of minor beneficial effects

13 Al Aluminium | 24 Cr Chromium | 48 Cd Cadmium

Examples of some elements particularly toxic to plants

79 Au Gold | 2 He Helium | 9 F Flourine

Examples of some elements that are neither beneficial nor toxic

Key

- Key function in plants
- Common symptom of deficiency
- Where deficiencies commonly occur
- * Never add in fertiliser as never deficient and high risk of toxicity to either humans or plants

One bottle, every essential nutrient!

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