CANNABIS NUTRIENT DEFICIENCIES & EXCESSES

Primary Nutrients

N — NITROGEN

Excess / Deficiency

11. Stems become weak
10. Foliage becomes weak
9. "Greenness" moves up
8. Bottom leaves turn lush dark green
12. Water/fluid transport system becomes weak
13. Harvest tastes green
6. Plants are shorter with smaller leaves
2. Leaves lose luster
3. Yellowing progresses upward
1. Lower leaves turn yellow
4. Leaves continue to yellow, curl and discolor
5. Leaves start to drop
7. Premature flowering and low yield

P — PHOSPHOROUS

Excess / Deficiency

8b. New leaves grow thin blades
8a. Newer leaves develop interveinal chlorosis
8c. Leaf tips and margins burn
8d. Less internodal space
8e. Diminished harvest
8. Zinc and iron micro-nutrient deficiencies
9. Calcium and mag-nesium deficiencies appear
9a. Lower leaves curl, develop spots
10. Dry buds have a "chemical" taste
9b. Root tips die back
3. Vertical and lateral growth slows
6. Weak plant susceptible to diseases and pests
2. Petioles turn purplish color
1. Leaves turn bluish green
4. Dark copper-colored or purple-to-blackish dead blotches on lower leaves
5. Severely affected leaves develop dark bronzish metallic purple colored leaves continue to curl, contort, wither and drop
7. Weak plant susceptible to diseases and pests

K — POTASSIUM

Excess / Deficiency

7b. New leaves grow thin blades
7a. Newer leaves develop interveinal chlorosis
7c. Leaf tips and margins burn
7d. Less internodal space
7. Causes calcium, mag-nesium, zinc and iron deficiencies
7e. Lower leaves curl, develop spots
pH↓
6. Root zone is acidified
7f. Root tips die back
1. Older leaves turn pale and suffer chlorosis
2. Leaf margins, tips turn rusty color and "burn"
4. Stem branching may increase
5. Flowering retarded and diminished
3. Stems often become weak, scrawny, and sometimes brittle

Secondary Nutrients

Ca — CALCIUM

Excess / Deficiency

6. Minor leaf wilt
7. Growth may be stunted
8. Uptake of potassium, iron, magnesium and manganese blocked
5. Stunted plant, diminished harvest
3. Flower development is slow
2. Yellowish-brown irregular spots develop on leaves and margins
1. Lower leaves contort and curl
4. Root tips may die back

Mg — MAGNESIUM

Excess / Deficiency

4. Stunted growth
5. Dark green foliage
6. Symptoms appear as an overall salt toxicity
3. Overall sickly appearance
1. Deficiencies exist 4-6 weeks before outward signs are apparent
2. Interveinal yellowing and irregular rust-brown spots appear on older and middle-aged leaves
4. Olders leaves dry, often curl and drop

S — SULFUR

Excess / Deficiency

7. Overall smaller plant development and uniformly smaller, dark-green foliage
8. Leaf tips and margins could discolor and burn when excess is severe
6. Bud formation is slow and weak
1. Young leaves turn lime-green to yellowish, and growth is stunted
2. As shortage progresses, leaf veins yellow and lack succulence
3. Leaf tips can burn, darken, and hook downward
4. Long purple streaks might appear the length of the stem when combined with an overall nutrient deficiency
5. Stems often turn woody

Trace Elements

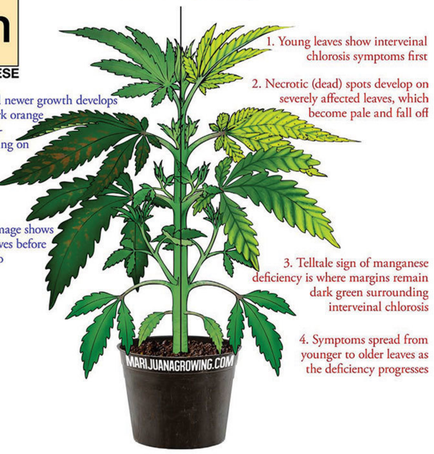
B — BORON

Excess / Deficiency

7. Leaf tips yellow before appearing burned
8. Leaves yellow and drop
1. Stem, tip and roots grow abnormally
2. Growth shoots appear burned and may contort
3. Necrotic spots develop between leaf veins
4. Leaves thicken and become brittle
5. Rust colored corky stems develop
6. Root tips often swell, discolor and stop elongating

Mn — MANGANESE

Excess / Deficiency



5. Young and newer growth develops chlorotic, dark orange to dark rusty-brown mottling on the leaves
6. Tissue damage shows on young leaves before progressing to older leaves
1. Young leaves show interveinal chlorosis symptoms first
2. Necrotic (dead) spots develop on severely affected leaves, which become pale and fall off
3. Telltale sign of manganese deficiency is where margins remain dark green surrounding interveinal chlorosis
4. Symptoms spread from younger to older leaves as the deficiency progresses

Zn — ZINC

Excess / Deficiency

5. Zinc overload is very rare but extremely toxic. Severely toxic plants die quickly
6. Excess zinc interferes with iron's ability to function properly and causes an iron deficiency
1. New and young leaves exhibit interveinal chlorosis, develop small, thin blades that contort and wrinkle
2. Often stem tips fail to elongate and growing shoots/tips become "bunched up."
3. The leaf tips, and later the margins, discolor and burn
4. reduces internode spacing, stunts new growth, including buds, and can severely diminish yield

Cl — CHLORINE

Excess / Deficiency

4. Yellowish-bronze leaves are smaller and slower to develop
5. Young leaves develop burned tips and margins
Note: Both severe deficiency and excess of chlorine have the same symptoms: bronze-colored leaves
1. Leaf tips and margins burn, turn bronze color
2. Young foliage turns pale green and wilts
3. Roots develop thick tips and become stunted

Mb — MOLYBDENUM

Excess / Deficiency

6. Causes a deficiency of iron
5. Leaves discolor
4. Leaves drop
1. In cold weather older and middle leaves yellow with possible interveinal chlorosis
2. Leaves become distorted, margins dry
3. Leaves drop

Mobile & Immobile Nutrients

Avoid Nutrient Problems With:
- Air circulation
- Air ventilation
- Air temperature
- Air humidity
- Adequate light
- Clean water
- Organic soil
- Regular maintenance

1. Immobile nutrients show nutrient defficiency & excess on newer leaves
2. Mobile nutrients show deficiency & excess on older leaves
3. Toxic salt buildup locks out nutrients causing deficiencies & excesses
4. Overwatering is common. Causes nutrient deficiencies & excesses. Drowns and rots roots
5. Irrigation runoff is essential for healthy growth

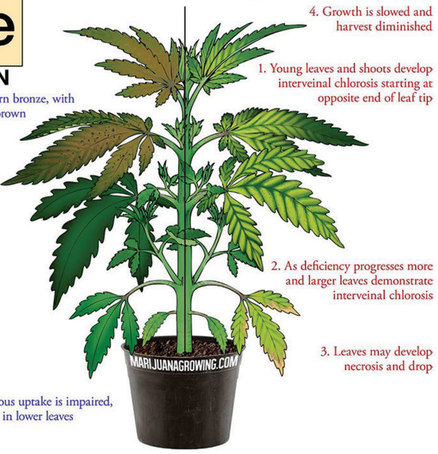
Cu — COPPER

Excess / Deficiency

4. Slower overall growth
5. Interveinal iron chlorosis
6. Fewer branches grow
7. Roots start to decay, or become thick and slow growing
1. Young leaves and shoots wilt, contort and may die back
2. Leaf tips and margins turn dark-green to copper-gray and die back
3. Growth is slow and yield decreases

Fe — IRON

Excess / Deficiency



5. Leaves turn bronze, with small dark-brown leaf spots
6. Phosphorous uptake is impaired, signs appear in lower leaves
4. Growth is slowed and harvest diminished
1. Young leaves and shoots develop interveinal chlorosis starting at opposite end of leaf tip
2. As deficiency progresses more and larger leaves demonstrate interveinal chlorosis
3. Leaves may develop necrosis and drop

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