

# CANNABIS NUTRIENT DEFICIENCIES & EXCESSES

## Primary Nutrients

**N**  
NITROGEN


**Excess / Deficiency**



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

**P**  
PHOSPHORUS


**Excess / Deficiency**



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

**K**  
POTASSIUM

**Excess / Deficiency**

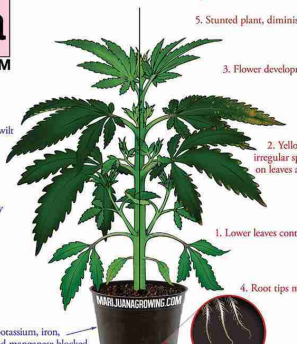


1. Older leaves turn pale and suffer chlorosis
2. Leaf margins, tips turn rusty color and "burn"
3. Stems often become weak, scrawny, and sometimes brittle
4. Stem branching may increase
5. Flowering retarded and diminished
6. Root zone is acidified
7. Lower leaves curl, develop spots
- 7a. Root tips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

## Secondary Nutrients

**Ca**  
CALCIUM


**Excess / Deficiency**



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

**Mg**  
MAGNESIUM


**Excess / Deficiency**



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
3. Overall sickly appearance
4. Olders leaves dry, often curl and drop
5. Dark green foliage
6. Symptoms appear as an overall salt toxicity

**S**  
SULFUR

**Excess / Deficiency**



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
6. Bud formation is slow and weak
7. Overall smaller plant development and uniformly smaller, dark-green foliage
8. Leaf tips and margins could discolor and burn when excess is severe

**B**  
BORON


**Excess / Deficiency**



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
7. Leaf tips yellow before appearing burned
8. Leaves yellow and drop

**Mn**  
MANGANESE

**Excess / Deficiency**



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
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

**Zn**  
ZINC

**Excess / 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
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

## Trace Elements

**Cl**  
CHLORINE


**Excess / Deficiency**



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
4. Yellowish-bronze leaves are smaller and slower to develop
5. Young leaves develop burned tips and margins
6. Both severe deficiency and excess of chlorine have the same symptoms: bronze-colored leaves

**Mb**  
MOLYBDENUM

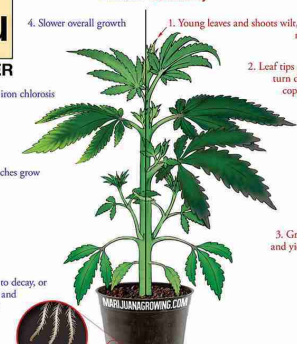
**Excess / Deficiency**



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

**Cu**  
COPPER

**Excess / Deficiency**



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
4. Slower overall growth
5. Intervel iron chlorosis
6. Fewer branches grow
7. Roots start to decay, or become thick and slow growing

**Fe**  
IRON

**Excess / Deficiency**



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
4. Growth is slowed and harvest diminished
5. Leaves turn bronze, with small dark-brown leaf spots
6. Phosphorous uptake is impaired, signs appear in lower leaves

## Mobile & Immobile Nutrients



1. Immobile nutrients show nutrient deficiency & 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

**Avoid Nutrient Problems With:**

- Air circulation
- Air ventilation
- Air temperature
- Air humidity
- Adequate light
- Clean water
- Organic soil
- Regular maintenance

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