

# Physiological changes caused by excess phosphorus

Author(s): доц. д-р Венета Каназирска

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## Физиологични промени, предизвикани от излишък на фосфор



Фосфор  
(P – Phosphorus)

Визуална диагностика

**PHOSPHORUS** (P – *Phosphorus* from the Greek „Φωσφόρος” – light)

### General symptoms

It is observed more frequently in hydroponic crops than in soil-grown ones. The reason is that in vegetable crops grown in soil, on the one hand, phosphorus in the soil passes into sparingly soluble compounds, and on the other hand – these crops extract significant amounts of  $P_2O_5$  – celery 90 kg/ha, tomatoes 81 kg/ha, potatoes 73 kg/ha. The main symptom of excess phosphorus is growth retardation. Symptoms of deficiency of copper, zinc, iron, cobalt, and calcium develop.

## Cause

High level of plant-available phosphorus in the soil. The effect is enhanced at a high level of nitrate nitrogen.

## Recommendation

Foliar fertilization with a solution of fertilizers containing micronutrients (zinc, copper, iron, cobalt).

## Identification of symptoms of excess phosphorus by crops



*Excess phosphorus in fruit vegetable crops*

### Symptoms of excess phosphorus in fruit vegetable crops:

- The older leaves are light yellow, while the younger leaves remain dark green, but later they also turn yellow, first between the veins and then – entirely. Bright necrotic spots appear and the leaves fall off;
- The formation of reproductive organs is inhibited.



*Excess phosphorus in leafy-stem vegetable crops*

**Symptoms of excess phosphorus in leafy-stem vegetable crops:**

- When the heads approach maturity, the midrib of the inner leaves becomes dark grey or brown. The effect is enhanced at a low level of potassium or a high level of nitrogen in the nutrient medium.