

FABRIQUÉ EN FRANCE

Water deficit leads to substantial yield losses, which will be more problematic due to climate change. In order to improve plant tolerance to abiotic stress, plant biostimulants are increasingly used in agriculture. However, more research is needed to clarify the mechanisms of action of plant biostimulants, including protein hydrolysates. In this study, we examined effects of a commercially available free amino acid-rich biostimulant : Leafamine® from BCF Life Sciences on greenhouse lettuce (Lactuca sativa) grown under different water conditions.

Our shoot biomass measurements show that Leafamine® mitigates water deficit effects. Leafamine® also increases the nitrogen, amino acids and ABA content of both plants. Our study on lettuce showed that this protein hydrolysate promotes photosynthetic activity alongside the synthesis of amino acids, polyamines and proteins. Leafamine® also leads to an adjustment of certain secondary metabolic pathways (sesquiterpenoids and flavonoids) and could thus act on the balance between plant growth and defense.

LEAFAMINE® based on free amino acids

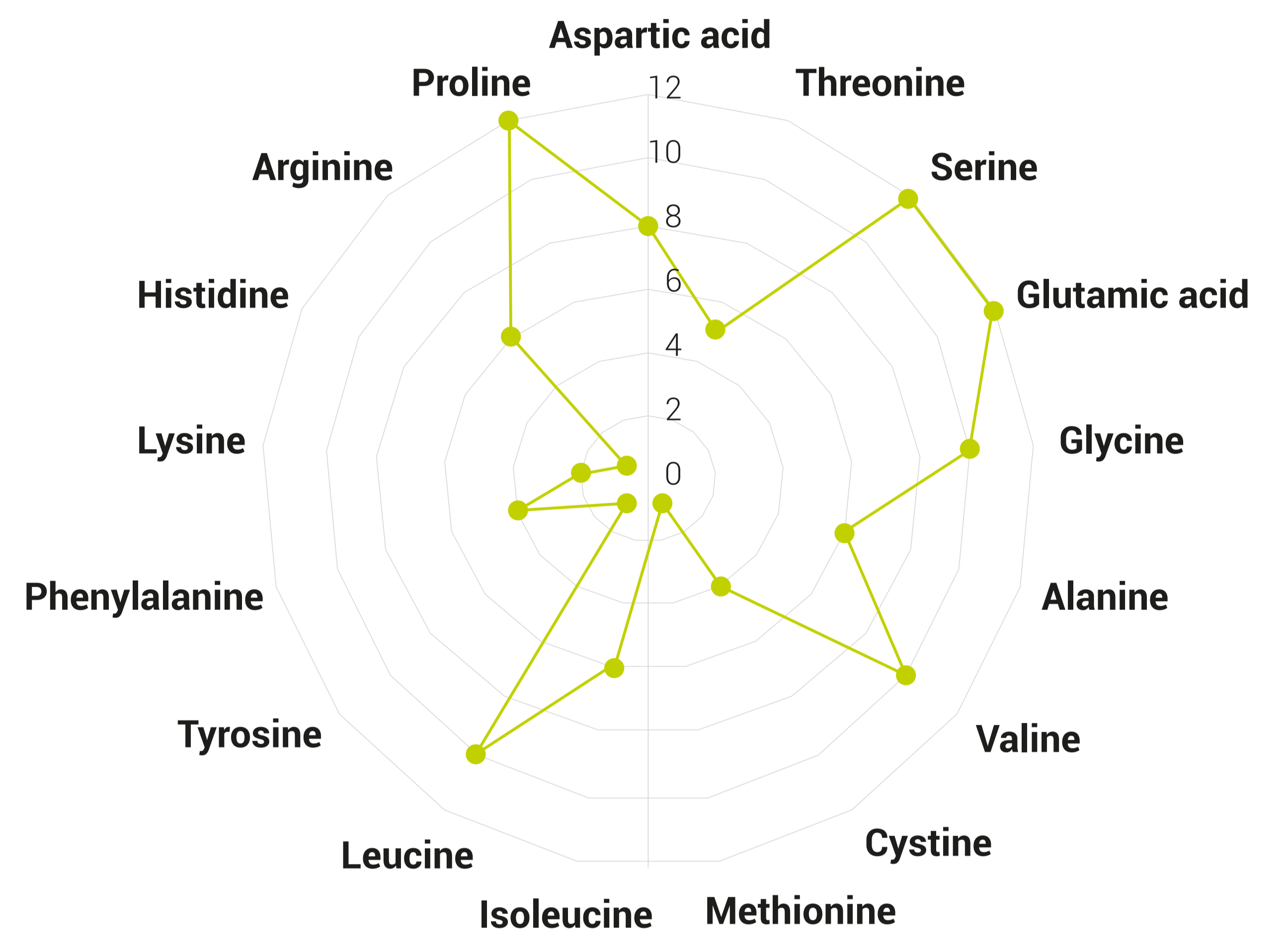


- L-form
- High concentration of 17 Free Amino Acids
- Organic product
- Low molecular Weight (<800 Da)
- Balanced Amino-Acid profile
- Quality consistency batch after batch

Leafamine®

- Free L-Amino Acids (82%)
- Low molecular weight (92,2% of AA < 240 Da and 100% < 800 Da)

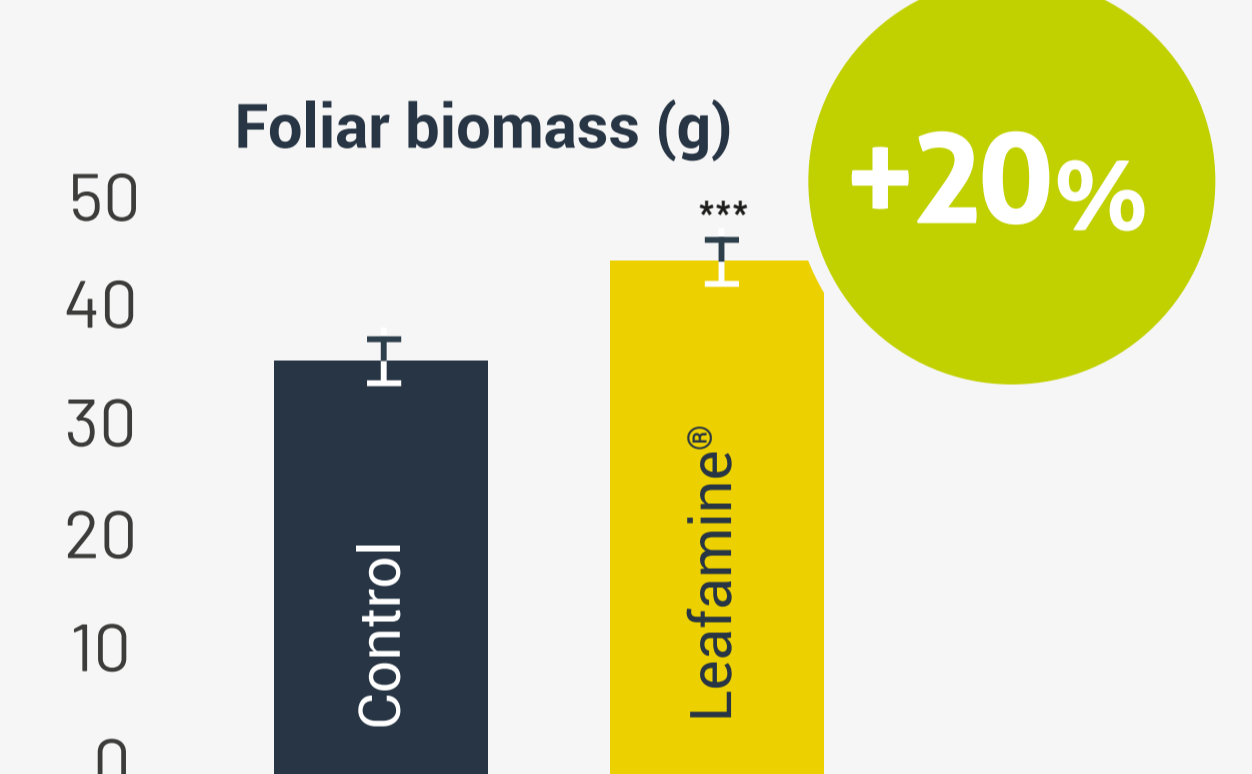
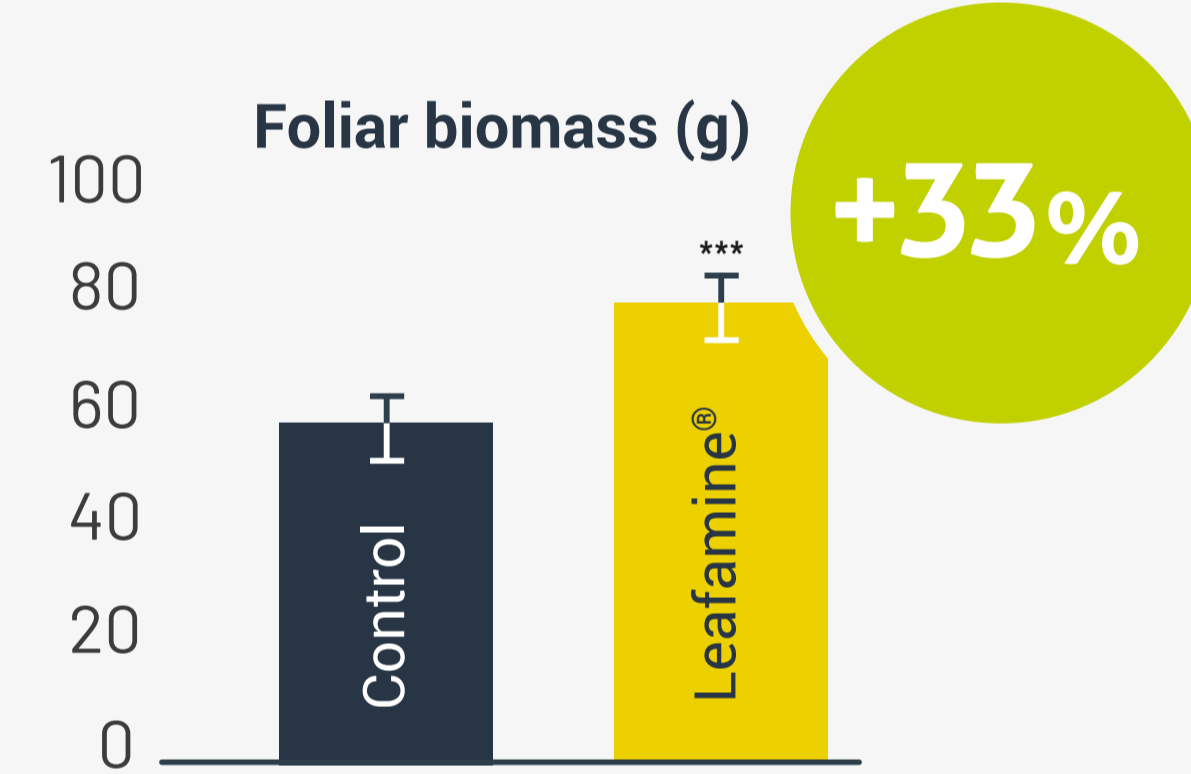
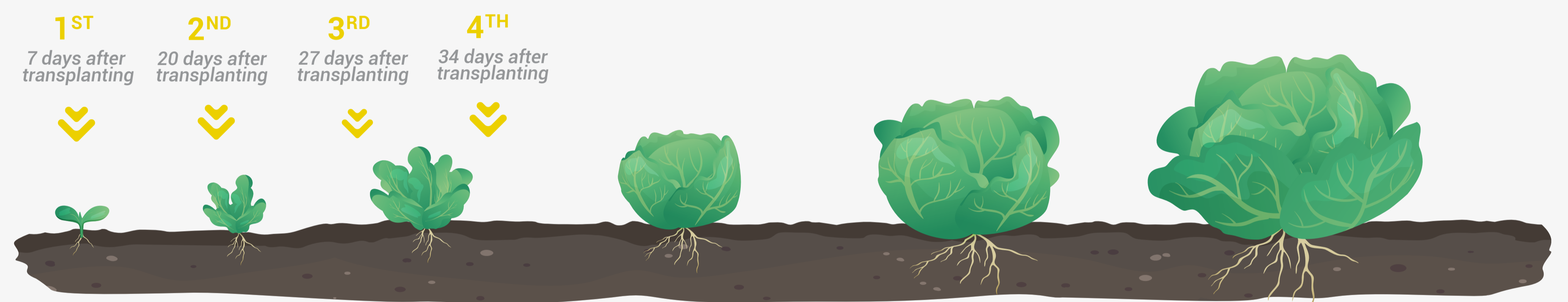
Leafamine® Technology



PROVEN PERFORMANCE on lettuce under water stress

DRIP APPLICATION

Greenhouse - in pots
30 plants per modality : 5,57g/L
Harvested 42 days after transplanting
Two water conditions : Well-watered lettuces and deficit-irrigated lettuces (-30%)



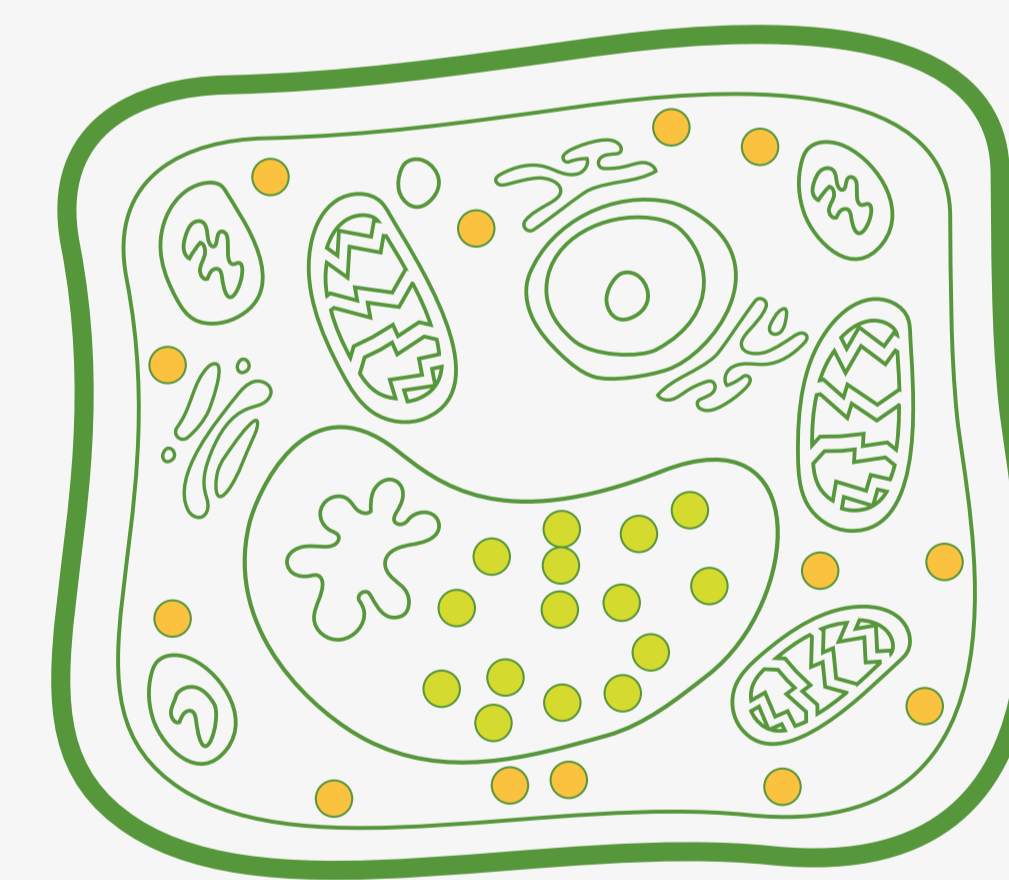
Leafamine® increases by 33% the shoot fresh biomass of lettuces grown under **under well-watered**

Leafamine® increases by 20% the shoot fresh biomass of lettuces grown under **under deficit irrigated**

Abscisic acid (ABA) is a plant hormone that plays major roles in the control of development and in the response to various environmental stresses. During periods of reduced water availability ABA accumulates in the leaves and promotes stomatal closure.

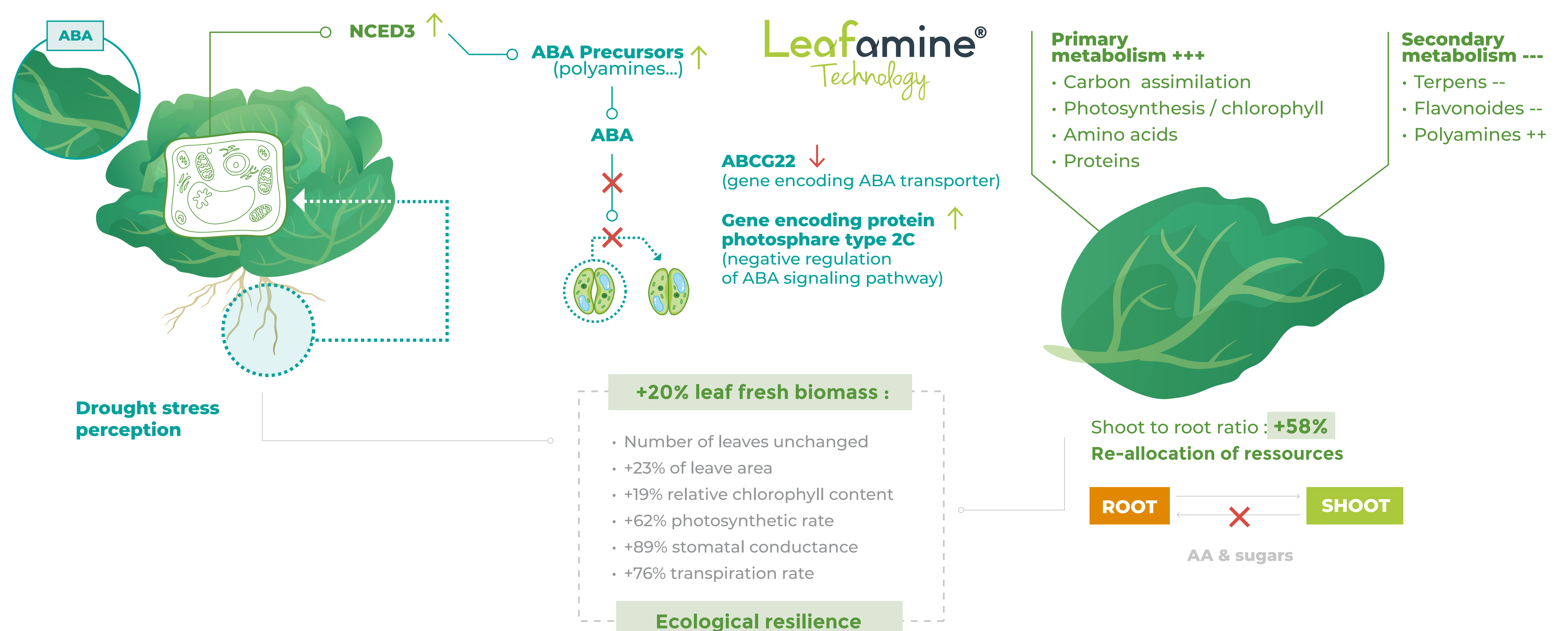


AA (proline), hexoses, polyamines, raffinose & galactinol, ABA



- Osmoprotectant molecules: better management of water stress
- Protect plant cells from oxidative damages

Leafamine® increases proline, raffinose, galactinol and ABA in the leaves under drought stress condition



Leafamine® improves significantly biomass and morphological parameters of lettuces and causes accumulation of compounds involved in tolerance to abiotic stresses. Leafamine® secures yield under drought stress condition.