We've got the richest concentration of bioactive compounds.

Organic acids help plants produce energy and encourage production of new compounds, boosting plant production.

Oligosaccharides elicit abiotic defense mechanisms to help keep plants healthy.

Betaines help plants adjust water levels, salt and other substances within cells, to better mitigate abiotic stress and protect chlorophyll.

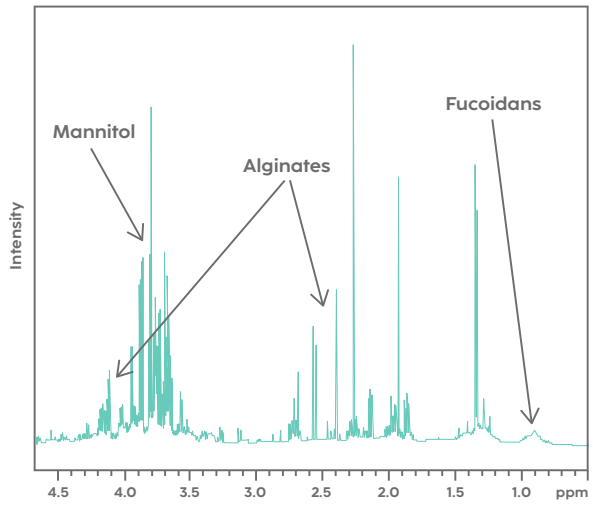
Mannitol protects and adjusts the amount of water in plant cells in times of water-related stresses.

Alginic acid helps chelate nutrients, making them more available to plants, and serves as a food source for beneficial soil microbes.

Fucose containing polysaccharides increase antioxidant levels and help protect plants from stress in general.

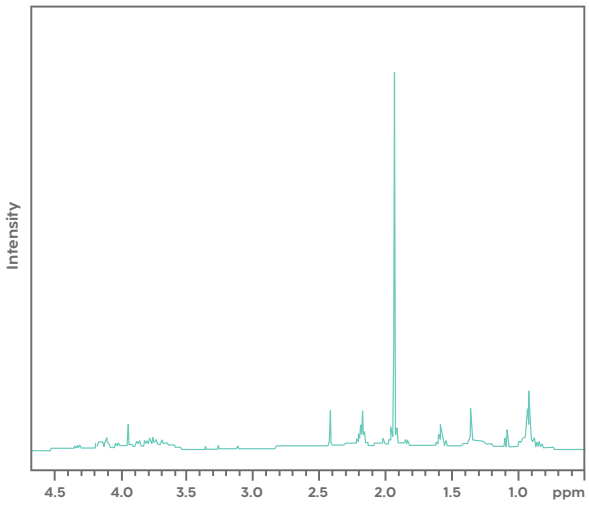
Comparing composition of different biostimulants:

Acadian Plant Health™ Product



Individual peaks and combinations can be used to identify specific compounds

Competitor Product



The Acadian Plant Health™ extract is visibly different from competitor products

Seaweed extracts' biochemical composition is complex, so understanding their mechanism of action is intricate. Partnering with the National Research Council of Canada, we have identified a 'biochemical fingerprint' for our products using nuclear magnetic resonance (NMR) technology. This fingerprint shows that our products are biochemically unique and consistent in quality.

Improved Abiotic Stress Mitigation.

Climate change weather events are testing the agriculture industry's capacity to respond and adapt. APH extracts can help. Our research results show consistent improved crop resiliency in the face of stressors like drought, heat, cold, salinity and nutrient deficiencies.

Improved Water Use Efficiency.

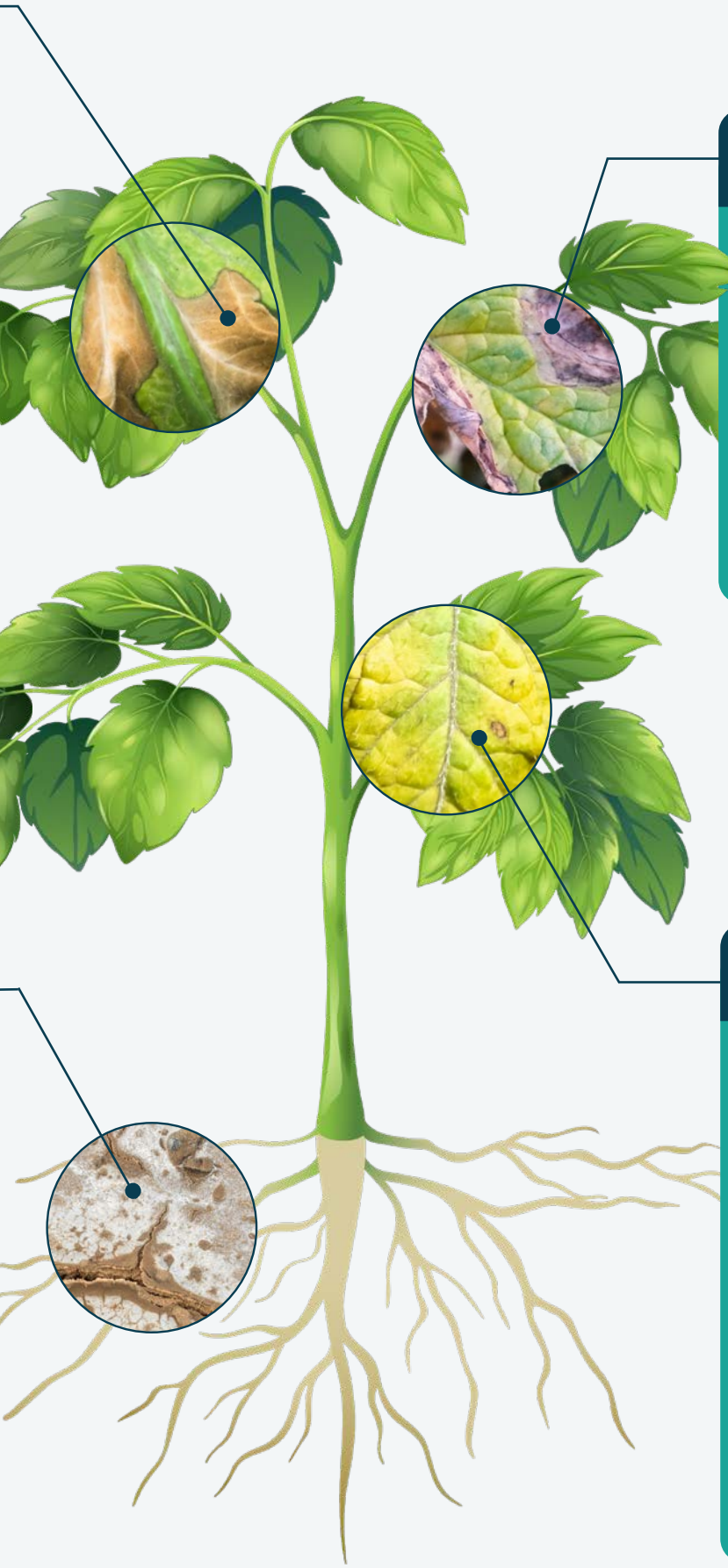
The unique compounds found in our extracts are proven to help plants in water stress situations. They help to "prime" plants to utilize their natural defense systems faster and more effectively, so they can maintain productivity and water balance in tough conditions like extreme heat and drought.

Improved Nutrient Uptake and Use.

Our extracts' bioactive compounds help the plant to attract and absorb nutrients in the soil through chelation, and even help plants to use fertilizer more effectively, since more of it ends up in the plant. This all results in enhanced growth, fuelled by a suite of genes that are responsible for growth, metabolism and stress response under limited nutrient conditions.

Optimized formulations for commercially viable solutions.

We implement Crop Protection Product (CPP) excellence standards into all stages of our process and operations, which includes an integrated commercial and research team, extensive experience with replicated field trials, peer-reviewed research, as well as in-house expertise in crop protection and synthetic chemicals. This allows us to work with our partners to identify potential product candidates, with the best chance of attaining commercial viability.



Heat Stress

Solutions

APH effect on plant

- Greater plant hydraulic conductivity – allows for more cooling, altered regulation of stomata which causes reduced leaf temperature under heat stress, less stomatal sensitivity to VPD (vapour pressure deficit)

Metabolites

- Increased cytokinins
- Increased SOD (superoxide dismutase, antioxidant) activity
- Reduced MDA (a marker for cell membrane damage)

Cold Stress

Solutions

APH effect on plant

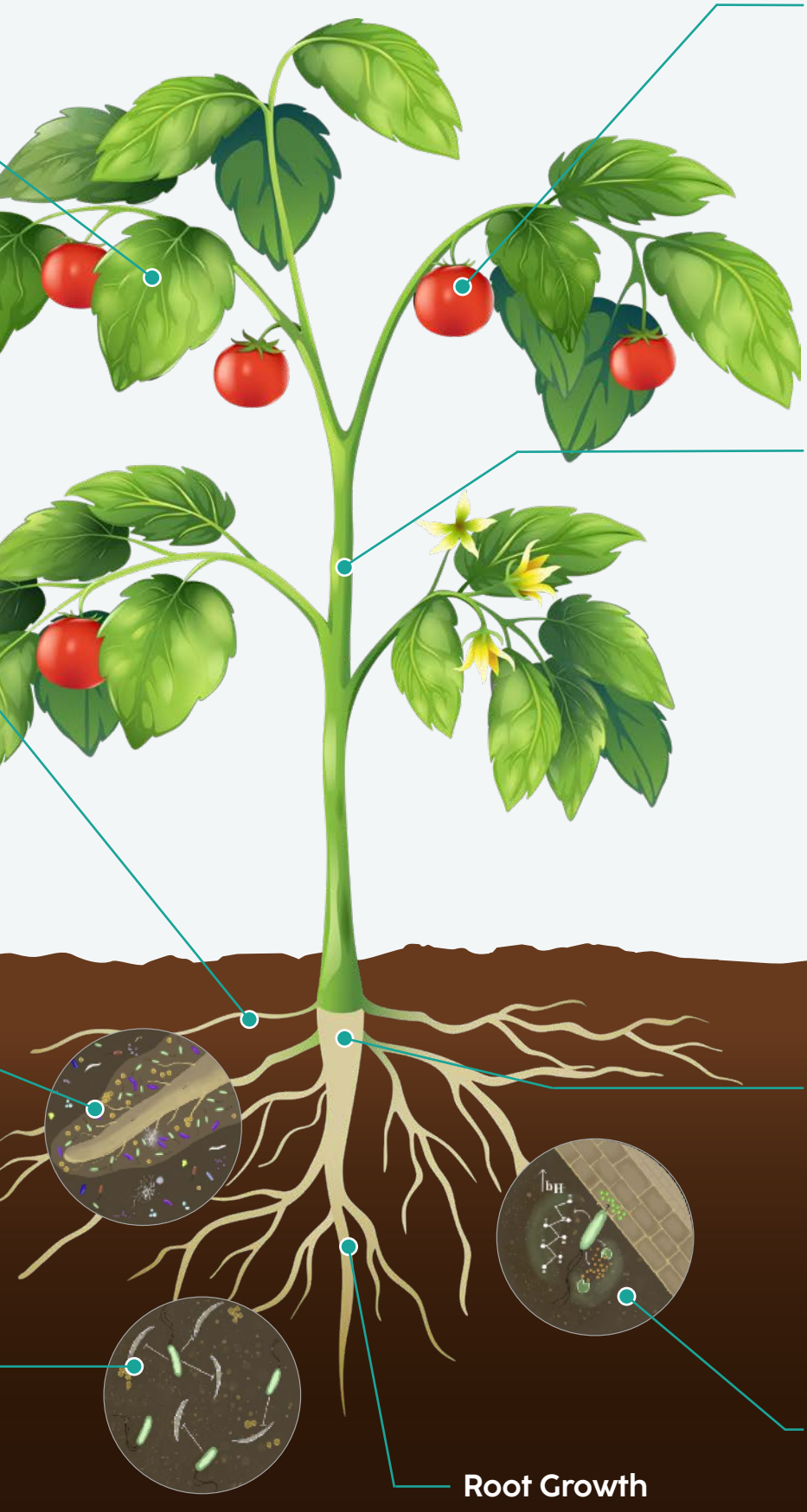
- Reduced cellular damage under freezing temperatures – less electrolyte leakage

Metabolites

- Increased proline sugars, unsaturated fatty acids & phenolic compounds
- Increased antioxidants (alpha tocopherol, ascorbic acid, super oxide dismutase & total antioxidant capacity)

Gene Expression

- Decreased expression of sucrose & proline degradation genes
- Increased expression of proline biosynthesis genes



Post-Harvest Shelf Life

APH effect on plant
- Increased firmness

Metabolites
- Reduced lipid peroxidation
- Reduced MDA (a marker for cell membrane damage)
- Increased antioxidants

Plant Growth

APH effect on plant
- Increased fruit number & weight

Metabolites
- Increased conversion of ammonium to glutamine
- Increased activity of nitrate reductase, photochemical activity & SOD (superoxide dismutase, antioxidant)
- Elicitation of endogenous plant growth regulators, total cytokinin metabolites

Gene Expression
- Modulated plant growth regulator genes
- Increased expression of flowering genes

Seed Emergence & Early Growth

APH effect on plant
- Increased emergence and early shoot length/weight

Metabolites
- Increased alpha amylase activity

Nodulation Activity

APH effect on plant
- Increased functional nodules on the plant

Metabolites
- Flavonoids in root exudates
- Increase NOD factor production in rhizobium

Root Growth

APH effect on plant
- Greater root growth – fresh & dry weight