

The role of integrated plant energy management

By World Focus Agri

The best producers are those who deliver the type of produce consumers expect and are willing to pay for. These producers use fewer chemical treatments and opt for more natural products to keep pace with the world's nutritional needs. They concentrate on development and environmentally friendly products that promote human health. Consumers expect producers to produce healthy, affordable food using acceptable and sustainable practices.

Producers can count on the support of World Focus Agri's technology and natural solutions for crop production and subsequent wealth creation through sustainable agronomy practices.

World Focus Agri uses natural products enriched with mineral nutrients to get the best of both worlds. This can only be achieved if it is commercially viable and yields an acceptable return on investment for the producer. This is where integrated plant energy management (IPEM) comes into play.

Why do plants need IPEM?

At certain points in the growth cycle of a crop, the energy demand is greater than the available energy reserves. This phenomenon occurs in cereals at initiation and during the transition from the vegetative to the reproductive phase. In the case of vegetables, perennial plants and trees, it occurs during blooming, fruit set (cell division) and fruit fill.

If this unique energy requirement is not met, the plant can experience an 'energy crisis', also known as metabolic stress. When a plant experiences metabolic stress, it is more susceptible to pathogens and insect attacks because it lacks the energy to drive the plant's enzymatic and hormonal system. These functions are responsible for optimal metabolism and defence against pathogens.

How to optimise plant energy

Producers can optimise plant energy by focusing on the following essential plant and crop components:

- Enzymatic systems.
- Calcium and its functional components.
- Functional and available carbon (-COOH).

With the addition of excellent natural organic metabolites such as functional carbon (-COOH) and Ca^{++} , the plant's energy curve regains its balance.

This more active and balanced metabolism leads to the following biological outcomes in the plant:

- Increased enzyme activation for metabolic changes and nutrient uptake.
- An increase in hormone activity due to this enzyme activation.
- Continuous regrowth of root hairs (crucial for optimal Ca^{++} uptake in plants).
- Increased concentration of plant sugars/nutrients (Brix).
- Increased balance of abscisic acid and an increase in plant sap conductivity (EC).

- Increased photosynthesis activity.
- Buffering of the pH of the soil/medium, and protection of seedlings and young plants from the high salt index of chemical fertilisers.
- Increased production of transporter enzymes, leading to better growth and robustness.
- Optimal balance between photosynthesis and respiration.

Owing to these changes in the plant's metabolism, there is a substantial increase in glucose, sugar, starch and amino acid production. These are excellent conditions for optimal blooming and fruit set, and ultimately improved yield and prolonged shelf life.

Recommended solutions

To obtain the best results in IPEM, the use of the following products by World Focus Agri is recommended:

- Enzymatic systems: Gliogrow, Gliosense, Glionut.
- Calcium: CCM, Complex Calsus, Complex Calsul and Complex SuperCa (ultrafine lime/gypsum).
- Functional and available carbon (-COOH): Complex SuperCa (organic chelated Ca).

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