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Nutrient use efficiency – the lifeline for growers this season

With growers and ag retailers facing tighter margins, and increasing pressure to improve nutrient use efficiency, ICL is investing in new fertilizer technologies to meet these demands. *Fertilizer International* talks to the company about some of its newest innovations.

US soybean farmer inspecting the crop.

Introduction

Growers around the world are facing soaring fertilizer prices and limited supply availability due to the disruption to shipping in the Middle East. Many farmers have no option but to reduce fertilizer use – so how can they maintain yields and quality in such difficult circumstances? Well, ICL Growing Solutions says part of the answer can come from combining slow-release, balanced fertilizers with biostimulants to help crops overcome stress and reach their potential.

“Nutrient use efficiency means something different now,” says Jason Haegele, marketing and innovation manager at ICL Growing Solutions. “This season it is not about squeezing a theoretical maximum response out of fertilizer. It is about protecting yield and consistency. It is about keeping nutrients available, balanced, and working under real world conditions, from planting through periods of stress.

“When we look for solutions, we are trying to not only simplify growers’ application processes but also improve their

profitability and minimise their impact on the environment.”

2026 is the year that caused significant shifts in mindset of both farmers and the fertilizer industry about what efficiency truly means, notes Jason. “Fertilizer is the largest input for crops – and there are a lot of reasons behind the current high prices, including high energy and transport costs. For farmers to remain profitable they’re going to have to take a hard look at becoming more efficient in how they use fertilizers, and how to use less.”

Biostimulants enable growers to focus on where they can achieve synergies with macro and micronutrients, suggests Christi Falen, US sales agronomy manager at ICL. They also provide food for important microbial communities. Adopting more sustainable products like biochar extracts is another environmentally-friendly way of stimulating crop growth and nutrient use efficiency.

“As we look forward, it’s about bringing the whole system together. Biologicals, synergistic effects within the soil microbiome,

foliar products and gradual release inputs for farmers improve their return on investment,” says Christi. “It’s about operating in a more holistic manner.”

“There is one school of thought that with better soil health we don’t need fertilizer. But the challenge is consistency – can the soil always deliver what the crop needs, when the crop needs it? With



Granules of ICL PKpluS® fertilizer.

PHOTO ICL

our innovations we lie somewhere in the middle, looking at how we can intelligently use all the techniques available to use, to improve efficiencies, reduce losses to the environment, and nourish both crops and people,” explains Jason.

He highlights some innovative new products from ICL that help deliver on these objectives.

ICL PKpluS®

ICL PKpluS® (0-24-6 + 15.4Ca, 1.8Mg, 9.1S) is a ‘five-nutrients-in-one’ slow-release fertilizer. It contains Polysulphate® and superphosphates within a single granule, offering a season-long supply of phosphorus, potassium, sulphur, calcium, and magnesium. Ideal for crops needing a phosphorus boost, it promotes strong plant establishment and healthy growth while allowing for flexible nitrogen application to match plant demand. In addition, it contains trace amounts of zinc, iron, and boron to support micronutrient needs.

Jason extols its virtues. “Polysulphate is a naturally occurring mineral fertilizer derived from polyhalite. It gradually releases nutrients over time, matching plant demand and reducing nutrient loss through leaching. Proven to enhance yields and quality across various crops and soil types, it requires no chemical separation or industrial processing, making it an environmentally sustainable choice with a low carbon footprint. With its low chloride content, low salt index, and neutral pH, it is ideal for sensitive crops, offering a natural solution to improve soil health and boost crop productivity,” he says.

This granular fertilizer can be applied in three ways: Seed row, sideband, and broadcast. It has been shown to enhance nutrient uptake, improving nitrogen and phosphorus use efficiency for optimised crop performance.

BIOZ® Jet

BIOZ® Jet is a soil-applied liquid biochar extract that stimulates root growth and seedling vigour, increasing the crop’s potential to take up nutrients and improving yields. This novel biostimulant is produced by ICL using proprietary technology. This transforms sustainably-sourced wood chips into bioactive compounds. These then work with the plant’s own system to support early root and shoot growth, and help crops handle abiotic stress for more uniform crop establishment.



Jason Haegele, marketing and innovation manager at ICL Growing Solutions.

“No matter the crop being planted, pairing fertility with biostimulants consistently improves efficiency and increases economic upside,” says Jason. “When products like BIOZ Jet and BIOZ Diamond (see below) are used alongside liquid or water-soluble fertilizers, growers are not adding more inputs – they are getting more performance out of what is already applied.”

Importantly, the first few weeks of a plant’s life set it up for its overall potential and resilience throughout the growing season, as Christi points out: “Stimulating germination both below and above ground in those early weeks helps drive more uniform growth.”

True nutrient efficiency comes from creating the right environment around the seed. That includes immediately accessible nutrients, active biology in the root zone, optimal soil structure and water retention, Jason explains. “Pairing nutrition with soil biology stimulation at planting improves nutrient uptake

efficiency right when the crop is most vulnerable.”

BIOZ Jet is composed of 0.012% soft-wood biochar extract and 99.987% non-plant food ingredients. It is recommended for both in-furrow and fertigation use. Characteristics, such as low use rate and an easy-to-mix liquid formula, ensure compatibility with fertilizers and crop protection products.

BIOZ® Diamond

BIOZ® Diamond 10-0-1 contains molasses and yeast extract to feed soil microbes – as a way of increasing nutrient use efficiency and crop productivity. It has been proven to improve early-season growth and nutrient uptake, resulting in higher ultimate yields.

“This enhanced nutrient fertilizer is designed to improve soil health and boost crop yields,” says Jason. “It is a mix of organic substances that activate the soil microbiome and make the resources naturally present in soil more available for the plants.”

By focusing on the soil and seed micro-environment – not just on the nutrient input – growers can protect yield potential and improve their return on every fertilizer investment, he advises.

“At the end of the day, it is not only about what you apply, it’s about how well the crop can use it,” sums up Jason. “By helping to achieve optimal soil conditions, BIOZ Diamond boosts nutrient uptake and root development, making it an efficient solution for farmers to support sustainability and profitability at the same time.”

BIOZ Diamond contains 10% nitrogen and 1% water-soluble K₂O. While it can be used alone – because its use improves crop response to other fertilizers – the greatest benefit comes from combining it with an additional source of nutrients in the form of a starter fertilizer, liquid fertilizer or as part of a complete fertigation programme for irrigated crops.

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Nova PULSE LQ™

Nova PULSE LQ™ (0-6-4 + 1Mg, 1.3S, 0.5Co, 10Mo, 6Zn) is a new liquid version of ICL's original water-soluble foliar fertilizer. Designed for nitrogen-fixing legumes, it contains a range of macro and micronutrients and promotes rapid foliar absorption to support crop need. As a product, it has proven to be consistently effective in both soybeans and tree fruits.

The liquid version, versus the water-soluble version formerly produced, is easier for farmers to use and can be applied in a tank mix with other spray ingredients such as insecticides and fungicides. "We can also add biostimulants to improve nutrient uptake," says Jason.

Nova PULSE LQ aids nitrogen fixation and enables crops to convert more nitrogen into proteins by helping legumes form root nodules, boosting overall yields and reducing energy losses. By promoting early cell division, it delivers larger, denser fruits with improved quality. It also helps fruits to remain on the plant for longer and lengthens their storage life by reducing ethylene biosynthesis.

"It only takes a very small dose of micro-

PHOTO ICL



Christi Falen, US sales agronomy manager at ICL.

nutrient to have a big impact, and helps farmers to get more from less," sums up Jason.

Ionique LQ™

Ionique LQ™ is a new low pH liquid NPK fertilizer from ICL. This acidifying fertilizer – by improving the availability of phosphorus which is locked up under alkaline conditions – is ideal for areas with hard water

Ionique LQ is suitable for a wide range of crops and contains 5% nitrogen, 20% P₂O₅ and 7% K₂O. It is soil-applied through irrigation systems early in the season to improve root growth in the rhizosphere. The aim is to create an ideal environment for the growing plant, and thereby improving efficiency, without changing the entire soil chemistry

"Our trials highlight the benefits of lowering the pH in the root zone with crops requiring two to four times less phosphorus versus non-acidifying fertilizers," concludes Christi. "This means you have both economic and environmental sustainability." ■

Acknowledgment

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