



Plant Care

Field crops & Special crops





Plant production challenges are becoming complex. The agricultural industry is being forced to adapt to ensure enough quality production to feed a growing world population in a changing climate context whilst taking into account the increasing regulatory requirements.

Through the development of **innovative biosolutions**, Olmix Group supports farmers and agricultural distribution chains in adapting production models.

OLMIX GROUP MISSIONS

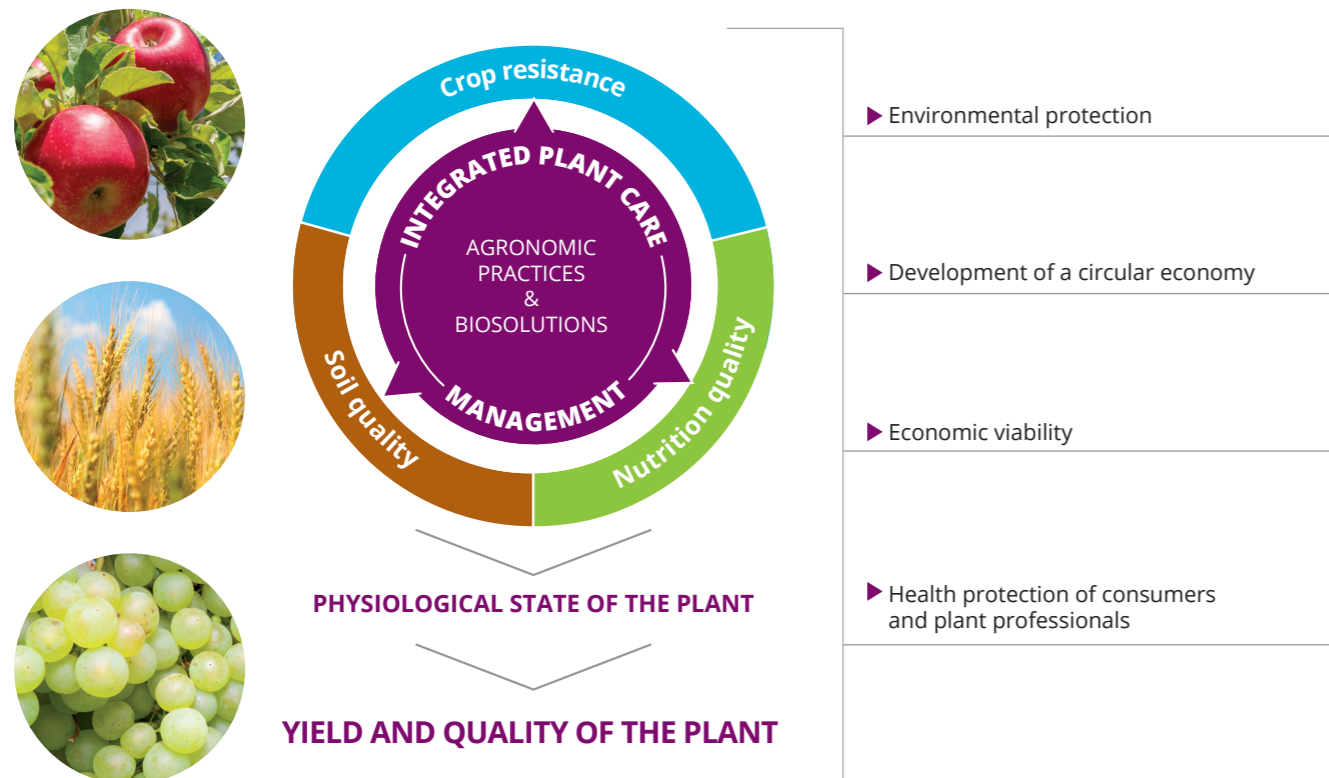
Olmix conceives biosolutions using its cutting-edge know-how in promoting the bioactive properties of algae and micronutrients. These aim at:

- ▶ Developing **soil fertility** and reinforcing soil **resilience**,
- ▶ Making **fertilizers more efficient** (tonnes of plant material produced/kg of fertilizer),
- ▶ Strengthening **crop resistance** to stress,
- ▶ Helping to **reduce the use of plant protection products**,
- ▶ Encouraging **the expression of the quantitative and qualitative potential** of cultivated plants.

These biosolutions are based on high-quality ingredients and recognized innovative technologies. They are part of the "Integrated Plant Care Management" concept.

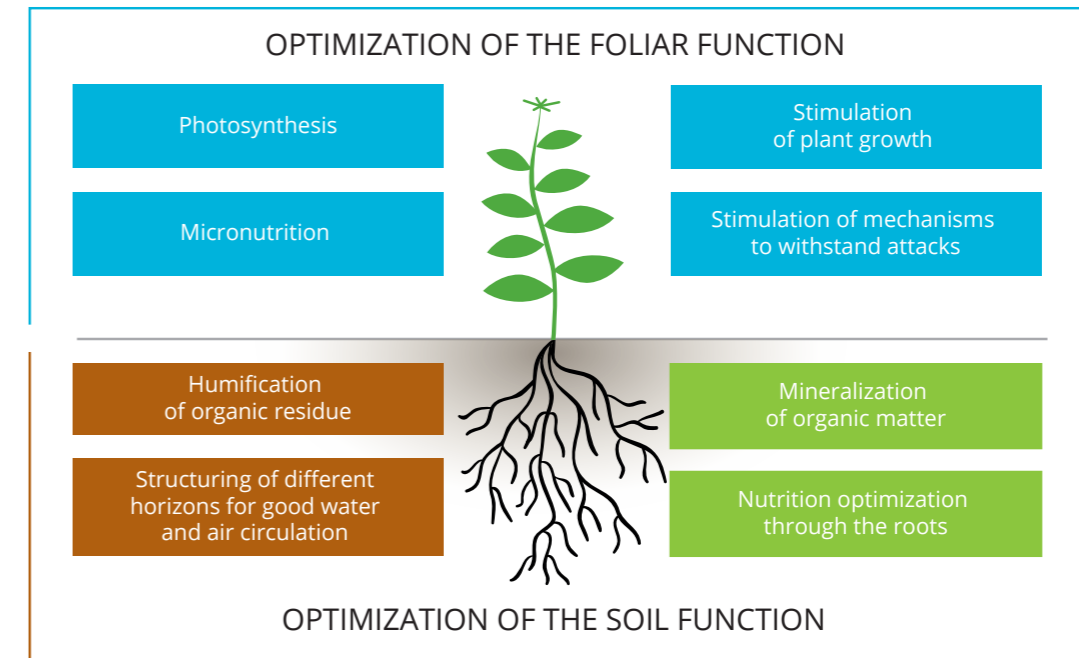
THE "INTEGRATED PLANT CARE MANAGEMENT" CONCEPT

Integrated Plant Care Management is a global approach to supporting plants that puts agronomy at the heart of agricultural practices, taking into account environmental, sanitary and economic issues.



"PLANT CARE" TECHNOLOGIES

Olmix biosolutions work on the essential functions of soils and plants through a variety of ways.



The Olmix technologies used in these biosolutions stem mainly from **expertise in sourcing, treating and capturing value out of algae and minerals**.



Extraction and capturing value out of nutrients and active substances from algae to stimulate plant growth and the ability to withstand attacks.



Use of the bioactive properties of minerals and specific micronutrients to stimulate the plant's biological reactions and the soil microflora.



Patented treatment of organo-mineral formulations to ensure sequential release of the fertilizer.



PLANT GROWTH AND RESISTANCE!

CONCEPT

SEATECH embodies the Olmix know-how in using algae in soil and plant nutrition and health.

Algae possess ingredients with stimulating properties for cultivated plants and the soil microbial flora. Among different macroalgae, red algae (Rhodophyta) have unique characteristics, especially in their high mineral, micronutrient and amino-acid content. They also contain specific sulphated polysaccharides, especially carrageenans. Recent researches have revealed the interest of these carrageenans as plant growth promoters and elicitors of anti-attack defense mechanisms.

TECHNOLOGY

Located very near the harvesting areas of Western France (Brittany and Vendée), Olmix handles the entire algae collection and processing process. It thus has available a fresh raw material, thereby guaranteeing quality and efficiency.

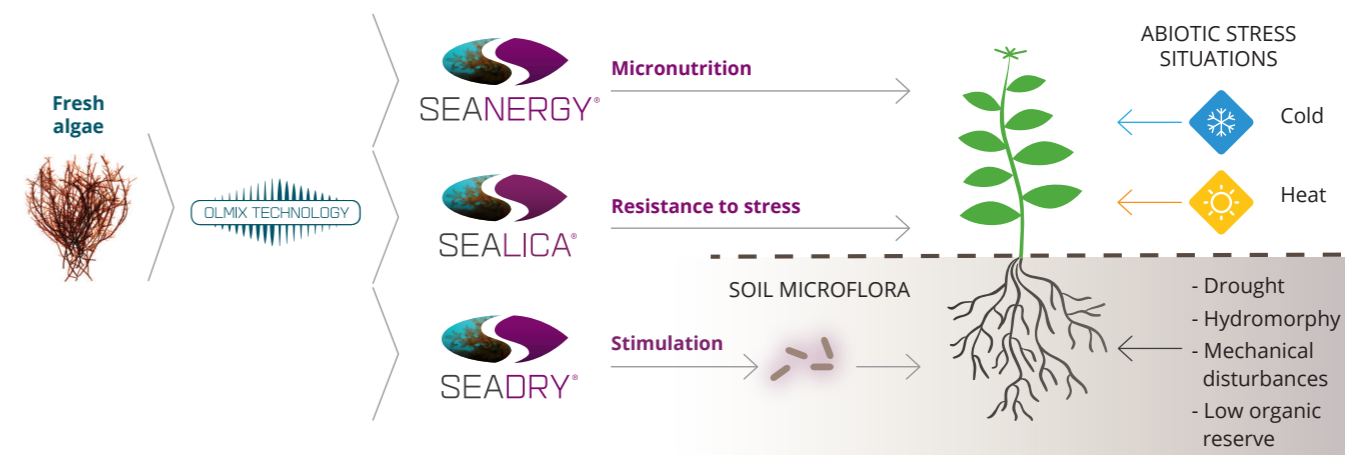
The main red algae targets on these coasts include annual species with a fast, short growth cycle, unlike many brown algae. This characteristic means high concentrations of soluble active components and limits the accumulation of heavy metals in their tissues. They thus offer outstanding sanitary quality.

They are processed within 24 to 48 hours after collection. Being able to manage this short period encourages perfect stability of molecules. An additive-free, cold physical extraction process preserves the stimulating and nutritional characteristics of the algae.

	Red algae	Brown algae	Green algae
Minerals and micronutrients	+++	++	++
Carbohydrates	+	++	++
Proteins	++	+	++
Sulphated polysaccharides	Carrageenans	Fucoidans	Ulvan

THE POWER OF SEATECH

The SEATECH technology gives birth to 3 families of algae-based ingredients, selected according to the goals sought.



Specific Extracts from Algae for plant eNERGY

Concentrated red algae liquid extracts, rich in bioactive compounds (minerals, micronutrients, carbohydrates, hormones, amino-acids, etc.).

- ▶ Enrichment of sap with essential nutrients
- ▶ Growth stimulation



Specific Extracts from Algae in Liquid Concentrated Association

Concentrated red algae liquid extracts, with added inorganic acids with biostimulating properties.

- ▶ Accentuated cell response to oxidizing stress
- ▶ Increased plant resistance to abiotic stress (drought, cold, etc.)



SEAwEED DRY extracts for underground life stimulation

Dehydrated algae extracts, rich in nutrients that can be metabolized by the soil microflora.

- ▶ Stimulation of soil biological activity
- ▶ Supply of nutrients for the rhizosphere



MIP[®] MINERAL INDUCER PROCESS

SERVING THE PLANT AND THE SOIL!

CONCEPT

The MIP technology optimizes vital functions of a soil or plant thanks to the specific mineral properties.

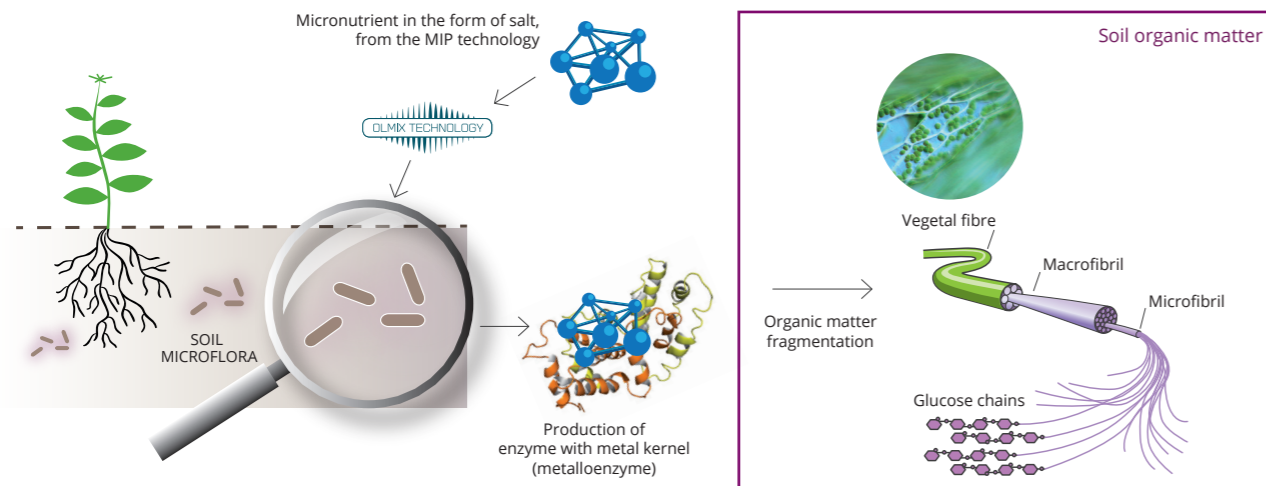
Olmix develops an original know-how based on stimulating enzymatic activities by controlled inputs of mineral salts and specific micronutrients. By their role as enzyme cofactors in numerous biological reactions in cells, these elements in fact possess multiple biological properties. That is the core feature of the MIP - Mineral Inducer Process - concept.

TECHNOLOGY

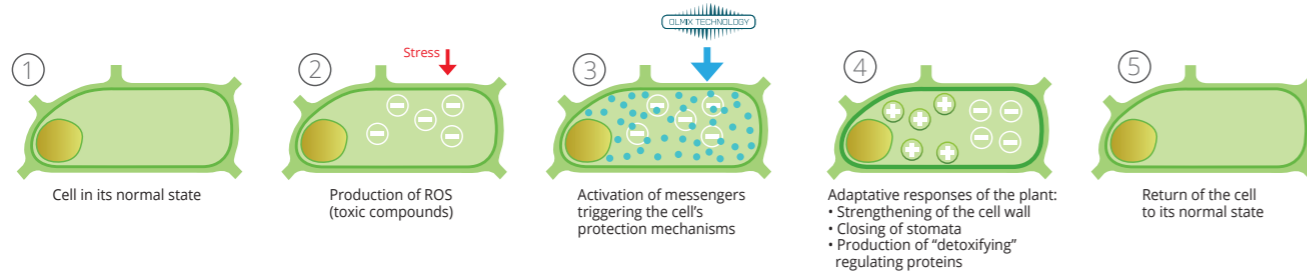
The principle is to select, formulate and provide the mineral ingredients that are essential to the correct sequence of biological reactions in the target organisms.

The selected minerals will be used to produce enzymes. These proteins play a part in many processes, including the breakdown of organic matter by the soil microflora or the protection of plant cells under stress. This technology is therefore targeting both improved soil functioning and plant stimulation.

APPLIED TO THE SOIL



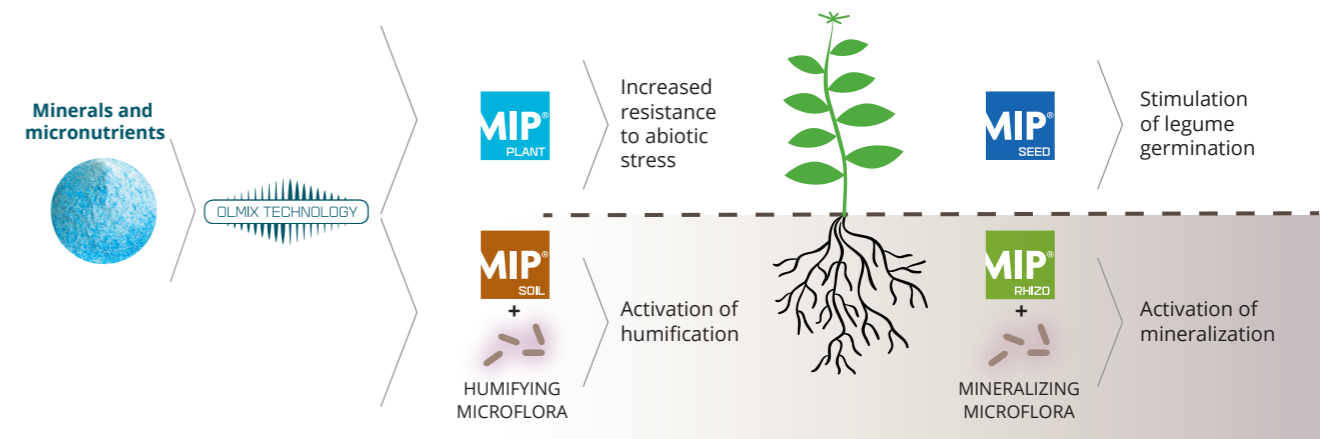
APPLIED TO THE LEAF



THE POWER OF MIP

Depending on the goals sought and therefore the biological processes to be stimulated, the Olmix know-how selects the most suitable mineral blends.

► 4 specific kernels are thus developed.



► MIP uses the properties of specific forms of minerals and micronutrients.



Contains iron, manganese, copper, boron...

► Stimulation of enzymatic reactions involved in the transformation of raw organic matter and especially humification (α -glucosidase, β -glucosidase, etc.).



Contains zinc, sulphur, iodine, molybdenum...

► Stimulation of enzymatic activities involved in the mineralization of organic matter (phosphatase) and nitrogen absorption.



Contains sodium, potassium, copper, magnesium...

► Triggering of the calcium signal within the plant cell, a signal that heralds adaptive responses from the plant: photosynthesis, detoxification, root growth...



Contains sulphur, molybdenum, cobalt...

► Solicitation of the germination and growth mechanisms of young rootlets in legumes.



SEQUENTIAL RELEASE OF THE FERTILIZER

CONCEPT

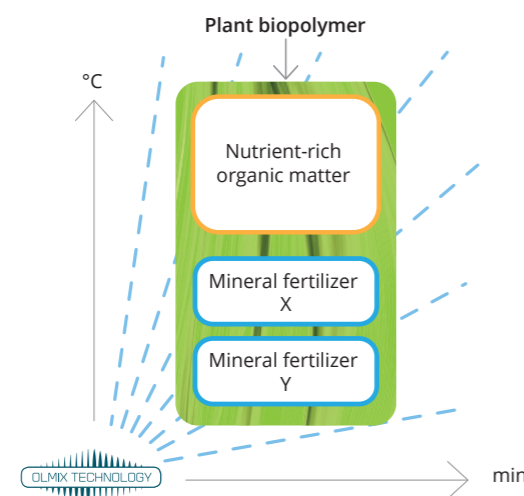
Releasing the nutrients when the plant needs them and limiting losses into the environment - these are the goals of the XSER technology (ComplexX for SEquential Release).

The challenges of sustainable agriculture necessitate maximizing the ratio between the amount of plant material produced and the quantity of inputs applied. It is therefore essential to synchronize as much as possible the supply of fertilizing units with the needs of crops and thus reduce losses into the environment drastically. The XSER technology developed and patented by Olmix improves fertilization efficiency.

TECHNOLOGY

The XSER technology combines forms of fertilizer with variable kinetics action with an organic substrate.

XSER links the different fertilizers and the organic substrate together using a plant polymer and pellets by blending using a patented process. The complex thus created protects the fertilizer from leaching by a link with the organic substrate and also delays the release of the fertilizer in the soil solution. The gradual consumption of the physical protection by the microbial activity of the soil and the separation of electrical links synchronize the input of nutrients with the needs of the plant. Thanks to the combination of forms of fertilizer with different absorption kinetics, the plant receives sequenced nutrition, which at the same time prevents excessive concentrations in the soil solution.



The XSER technology is a complexing between a plant biopolymer and a substrate made up of organic matter and mineral fertilizers, under the effect of a heat treatment for a set duration.

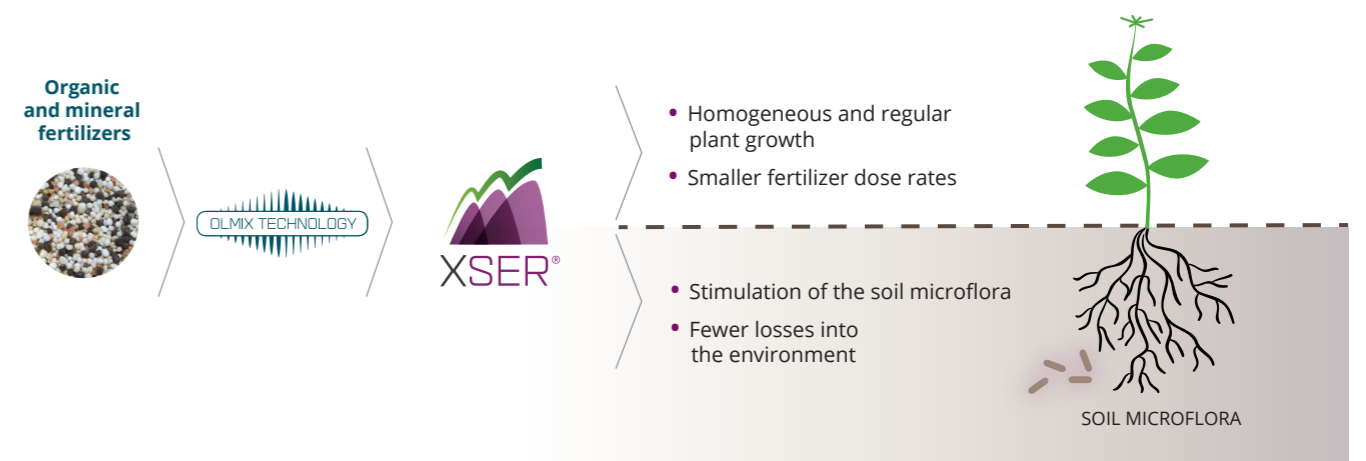
THE POWER OF XSER



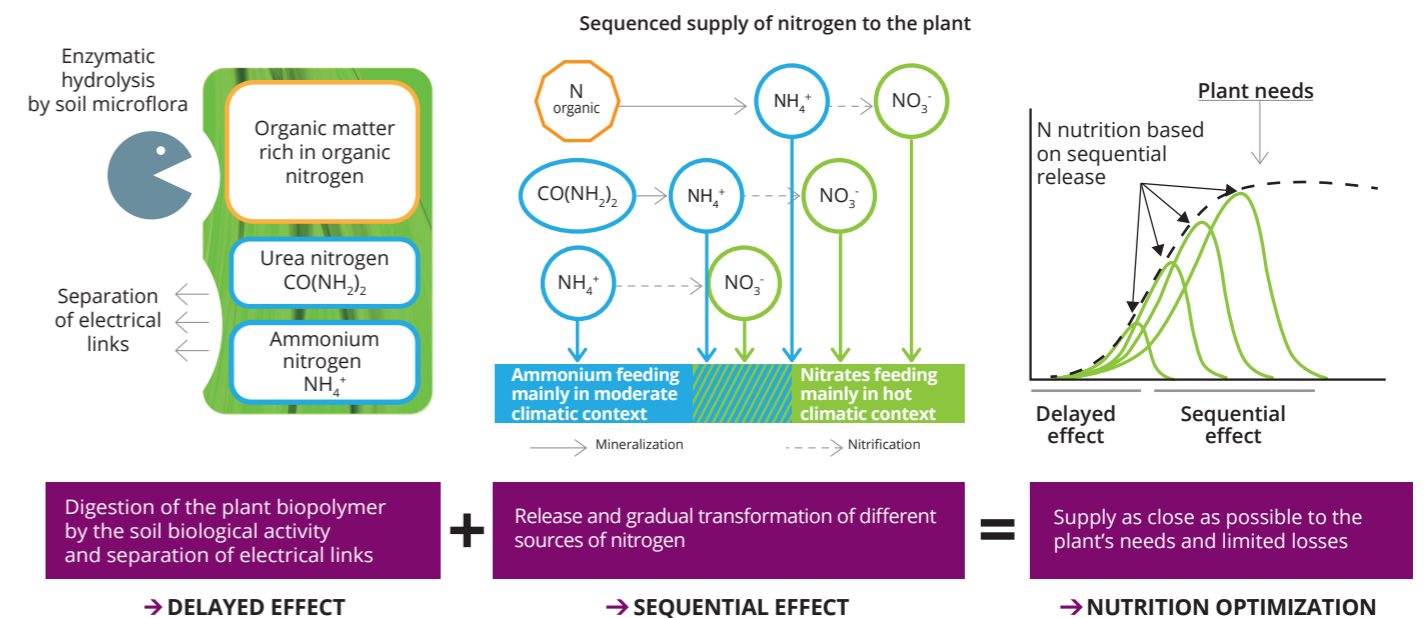
The XSER patented technology offers technical, economic and environmental benefits.



- ▶ Reduced fertilizer losses through leaching
- ▶ Better use of fertilizer units by sequential release
- ▶ Stimulation of the microflora by an organic input that can easily be mineralized
- ▶ Preservation of the biological activity by an environmental-friendly complexing agent of plant origin
- ▶ International patent



XSER APPLIED TO NITROGEN RELEASE



Functionalities	Goals sought	Product ranges	References	Technologies	(3)
Soil Quality	<ul style="list-style-type: none"> ▶ Improved soil structure ▶ Better drainage ▶ Better evolution of harvest residues and farm manure ▶ Resistance to hydric stress ▶ Resistance to erosion ▶ Support of Minimum Tillage and Direct Drilling techniques 	Biological activators	Geo2 ⁽¹⁾⁽²⁾	MIP ^{SOIL}	✓
			Neosol	SEADRY [®] MIP ^{SOIL}	✓
			Humeo ⁽²⁾	MIP ^{SOIL}	✓
Nutrition Quality	<ul style="list-style-type: none"> ▶ Improved root function ▶ Enhanced mycorrhization ▶ More effective fertilizer units ▶ Better plant nutrition ▶ Optimization of yield and quality 	Boosters for fertilizers blend	Akeo ⁽¹⁾⁽²⁾	MIP ^{RHIZO}	✓
		Biofertilizers	Explorer ⁽¹⁾	SEADRY [®] MIP ^{RHIZO}	✓
			Primeo	MIP ^{RHIZO}	✓
		Organo-mineral fertilizers	Primeo ORGA	MIP ^{RHIZO}	✓
		Organic fertilizers	Marathon ⁽¹⁾	XSER [®]	✓
		Soluble fertilizers	Melfert Vitalbase		✓
Crop resistance	<ul style="list-style-type: none"> ▶ Resistance to abiotic stress ▶ Attenuation of the impact of chemical stress ▶ Enhanced photosynthesis ▶ Root growth ▶ Building of yield components 	Biostimulants Field crops	Algomel PUSH Algomel SHIELD Algomel Zn-Mn Algomel Mn-Cu	SEANERGY [®]	✓
			Algomel PROACT	SEALICA [®]	✓
		Biostimulants Special crops	Seamel BOOSTER Seamel BLOOM Seamel BARRICADE Seamel PURE	SEANERGY [®]	✓
			Seamel PREVENT	SEALICA [®]	✓
		Biostimulants All crops	Agroptim SUNSET Agroptim ZENITH	MIP ^{PLANT}	✓
			Agroptim LAGOON	SEANERGY [®] MIP ^{PLANT}	✓
			Oceamax	SEANERGY [®]	✓
Germination rate	<ul style="list-style-type: none"> ▶ Germination stimulation ▶ Stand improvement ▶ Yield optimization 	Fertilizers and biostimulants for seed	Seedup 21	SEANERGY [®] MIP ^{SEED}	✓
			Seedup 22	MIP ^{SEED}	✓

(1) Patented.

(2) Contains an activator or a stimulator approved by French authorities.

(3) Authorized by ECOCERT in organic farming. To be checked according to country regulations.



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