

n-45

NANO COMPLEX



HIGH UPTAKE



**NANO
TECHNOLOGY**



MAX YIELD

FERTILIZER



IMPORTED
FROM EU





n-45

NANO COMPLEX

Aspe

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n-45

NANO COMPLEX



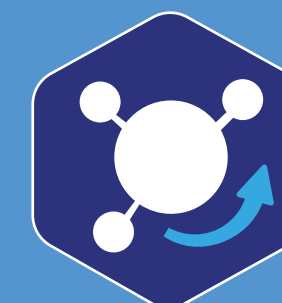
MAX
YIELD



HIGH
INCREASED
RENTABILITY



NANO
TECHNOLOGY



HIGH
UPTAKE

CHARACTERISTICS

N-45 NANO COMPLEX is a formulated nutritional product and not just a simple mixture of raw materials, as are most of NPK fertilizers in powder form.

N-45 NANO COMPLEX has an uniform and simultaneous solubility of all the nutrients, during use, while avoiding sedimentation in the storage containers of the nutrient solution. In contrast, common NPK water soluble powder fertilizers, which are produced through a mixture of raw materials, have increase variability in grain size that results in a non-uniform dilution of nutrients, since the smallest grains are dissolved firstly.

The conductivity and the salinity index are maintained in very low levels so that the soil

COMPOSITION

%w/v

Total Nitrogen (N)	45,00
Zinc EDTA	01,00
Manganese EDTA	00,80
Molybdenum	00,05
Nickel	00,02

will not be burndened with undesirable, salt concentration.

Application is suitable for different crops: fruit trees, coffee, olive trees, vegetable crops, industrial crops, meadows, etc. It can be used in drip irrigation, foliar application and flood irrigation.

PACKAGING :



1L



5L



10L



20L



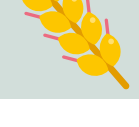
1000 L





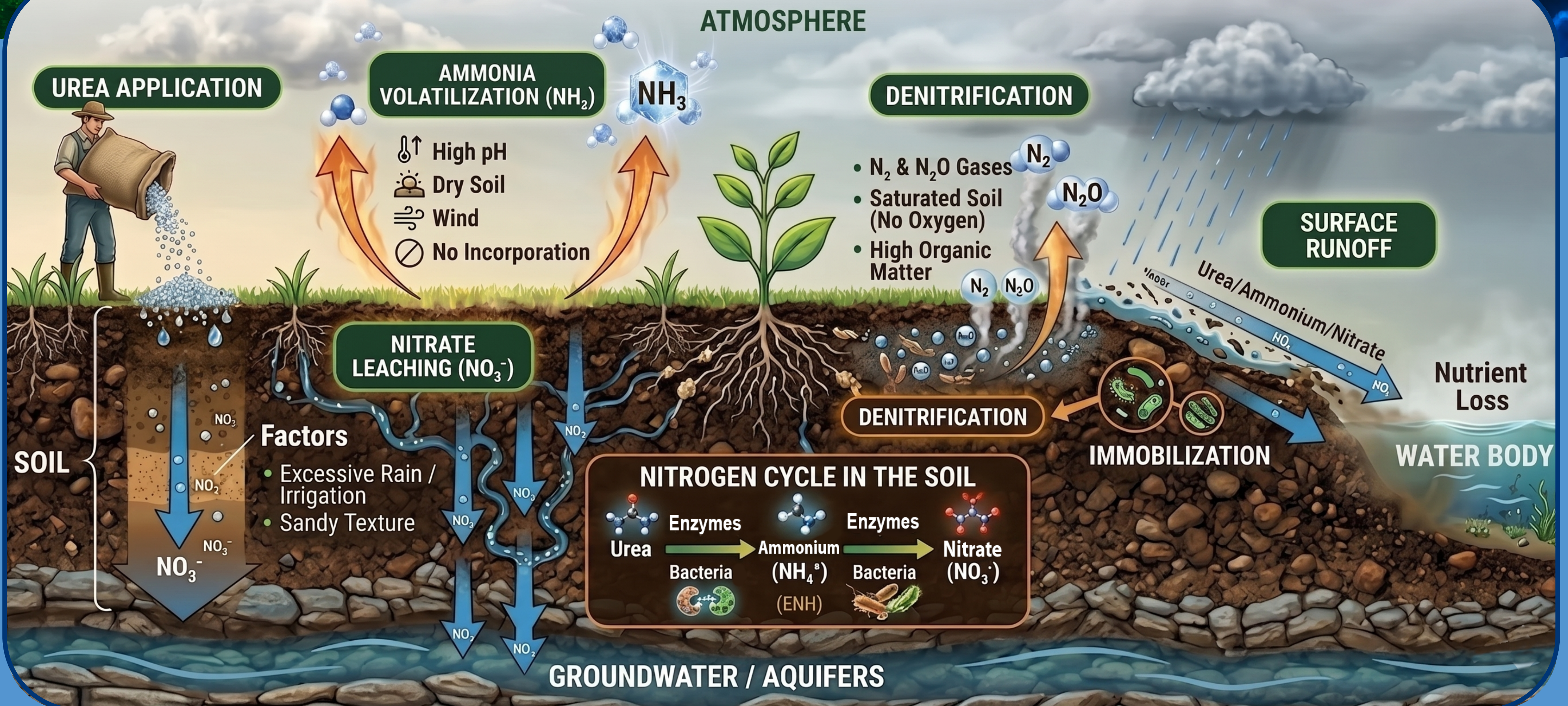
APPLICATION



	CROP	L/Ha	ml/100L	APPLICATION DETAILS
	RICE	2 - 5	200-300	Rooting to tillering stage. Spray 2-3 times per cropping.
	CORN	4 - 5	100 - 300	1 week after germination. Spray 3-4 times per cropping.
	COTTON	—	200 - 300	2-3 applications (from 4th leave to the harvest).
	CITRUS	4 - 5	200 - 300	3-4 applications (sprouting, preflowering, setting and fattening).
	FRUITS AND WINE	3 - 5	200 - 300	2-4 applications (from sprouting until bud diferentiation).
	CEREALS	4 - 5	100 - 300	1-2 applications.
	VEGETABLES	4 - 6	200 - 300	3-4 applications, each 10-14 days.

	CROP	L/Ha	ml/100L	APPLICATION DETAILS
	SUGAR BEET	4 - 6	200 - 300	2-3 applications.
	OLIVE TREE	5 - 10	300 - 400	3 applications (beginning of sprouting, stone hardening, fattening)
	POTATOES	5 - 10	300 - 400	1-2 applications at the beginning of the crop.
	MANGO	3 - 5	200 - 300	Apply during growing stage and off-season period.
	ONIONS/ GARLIC	4 - 6	100 - 200	7 to 10 days after transplanting to bulb formation. Spray 3-4 times per cropping.
	PLANTATION CROPS (BANANA, PINEAPPLE)	3 - 5	200 - 300	Vegetative stage to pre-flowering stage.

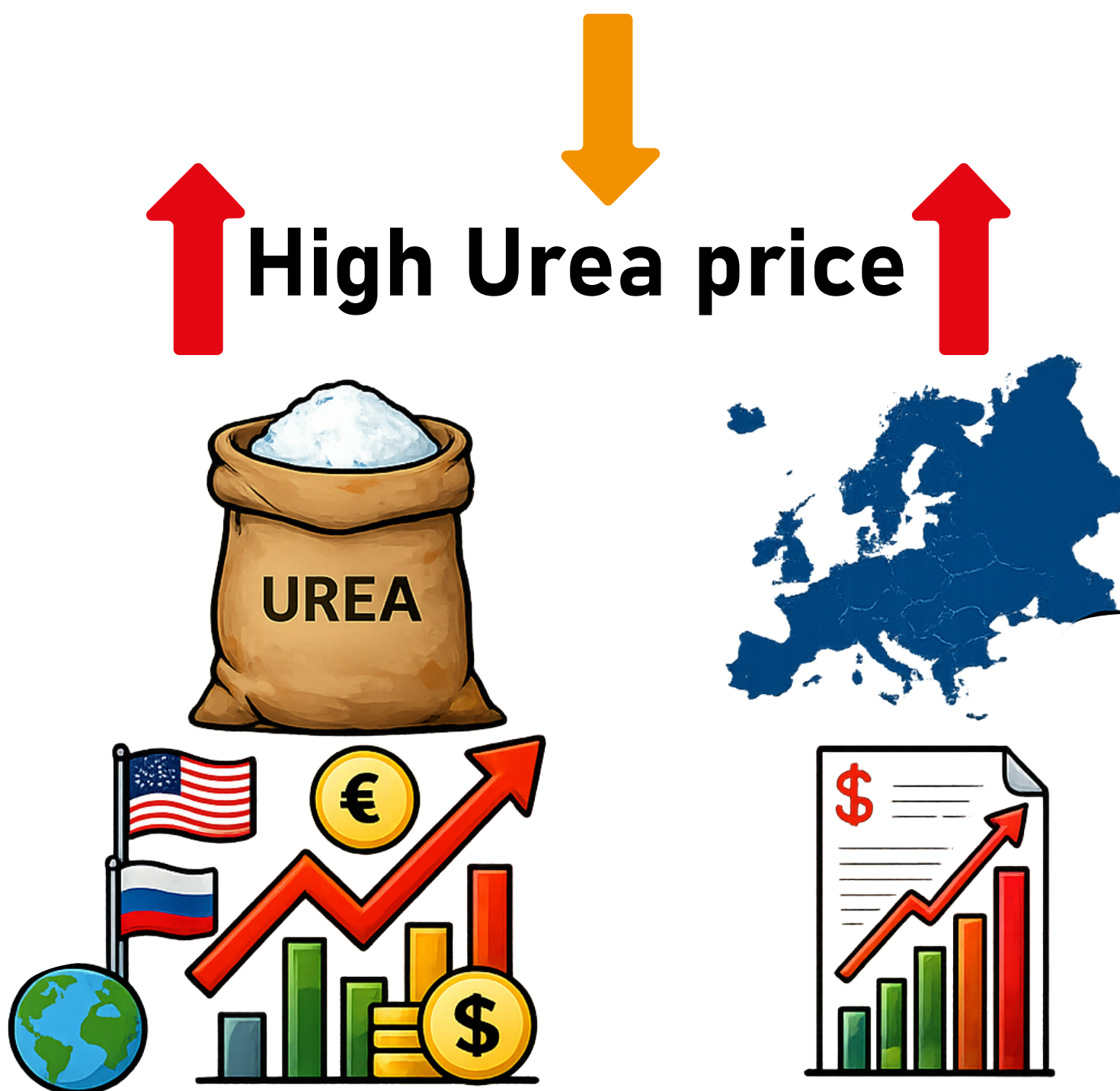
UREA DYNAMIC IN SOIL: PATHWAYS OF LOSS



ADVANTAGES OF N-45

UREA

1 Current geopolitical situation



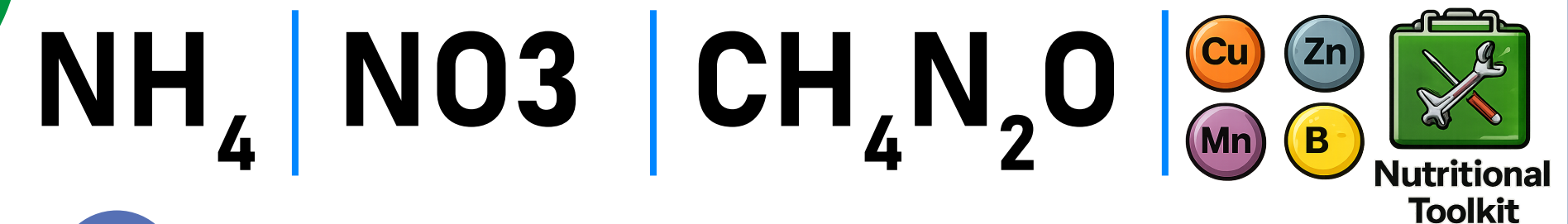
VS

N-45 NANO COMPLEX

1 Immediate Nitrogen absorption (FOLIAR)



2 All forms of Nitrogen + Micronutrients



3 More KGS per unit of Nitrogen

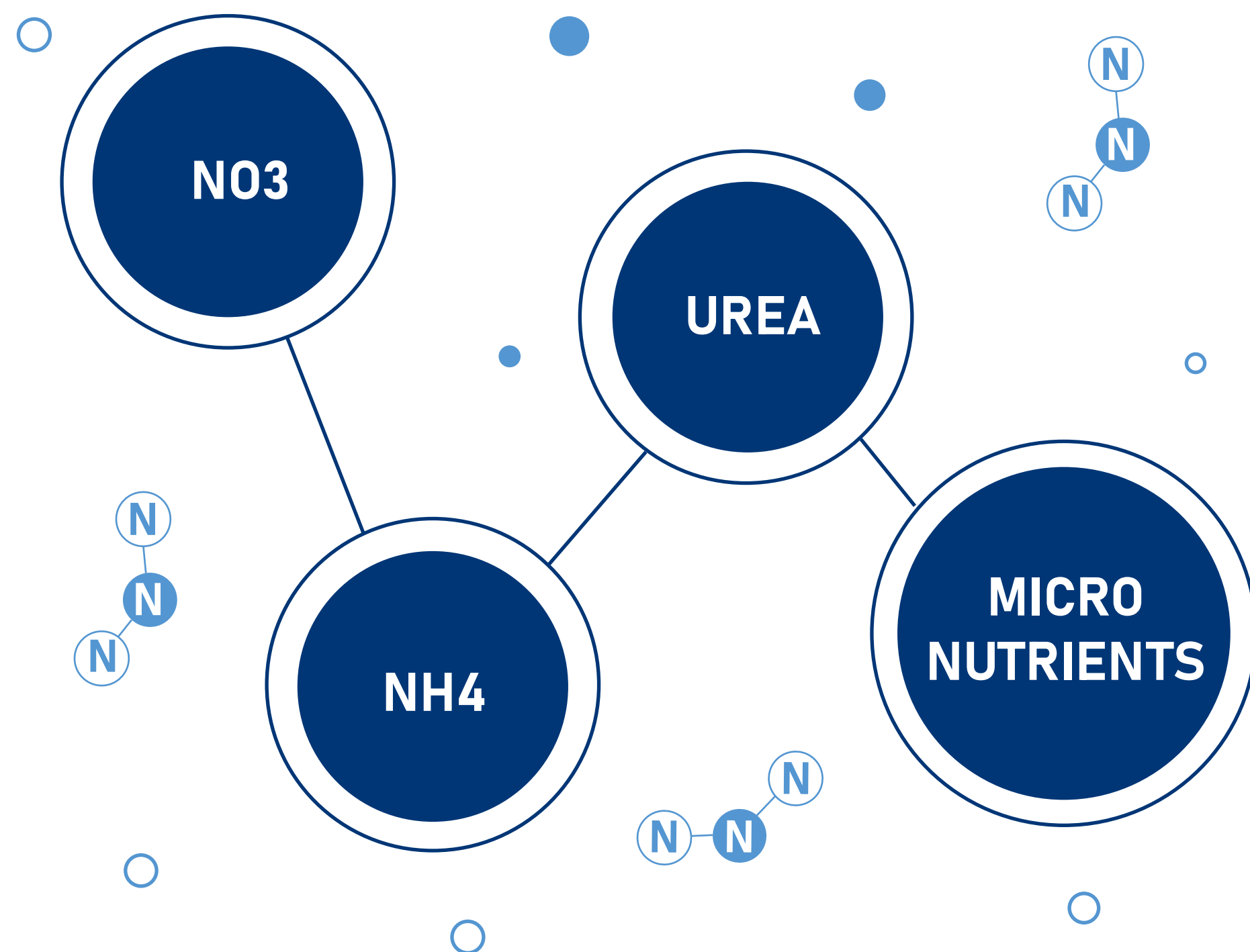


MORE PROFITABILITY



N45 NANO COMPLEX GEL SYNERGY

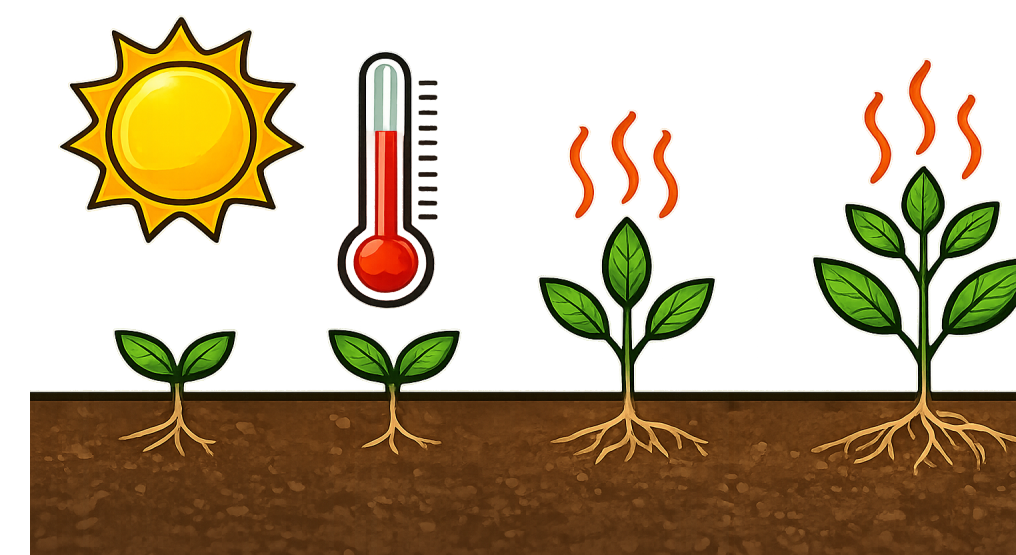
COMPOSITION: COMBINED NITROGEN



KEY BENEFITS

1

Efficiency against thermal stress



GEL: HIGHER FOLIAR CONTACT

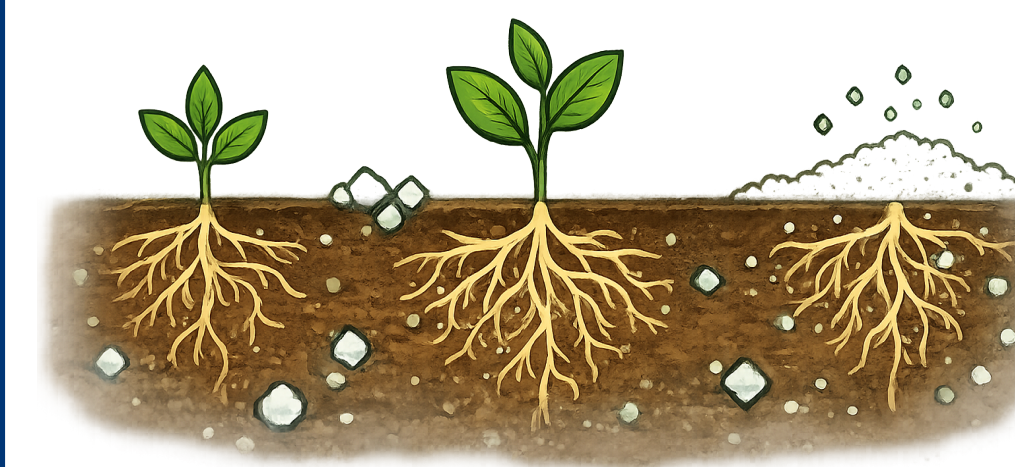
2

Laminar effect



3

Reduce soil salinization



STANDARD UREA VS NANO-STABILIZED UREA

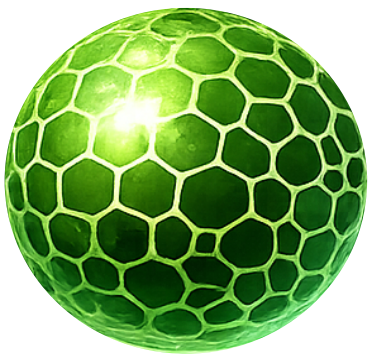
STANDARD UREA



Conventional fertilizer

- 46% N (ureic)
- High solubility
- Mass use
- Low cost

VS



NANO-STABILIZED UREA

Advanced urea with nanotechnology and chemical stabilization

- 46% N (ureic)
- High solubility
- Mass use
- Low cost

CHARACTERISTICS

- %Total Nitrogen
- Hydrolysis rate
- NH_3 Volatilization
- Loss Risk
- Use Efficiency (NUE)
- Persistence in Soil / Plant
- Foliar Penetration
- Stability in Fertigation
- Compatibility in Mixtures
- Cost / Value
- Environmental Impact

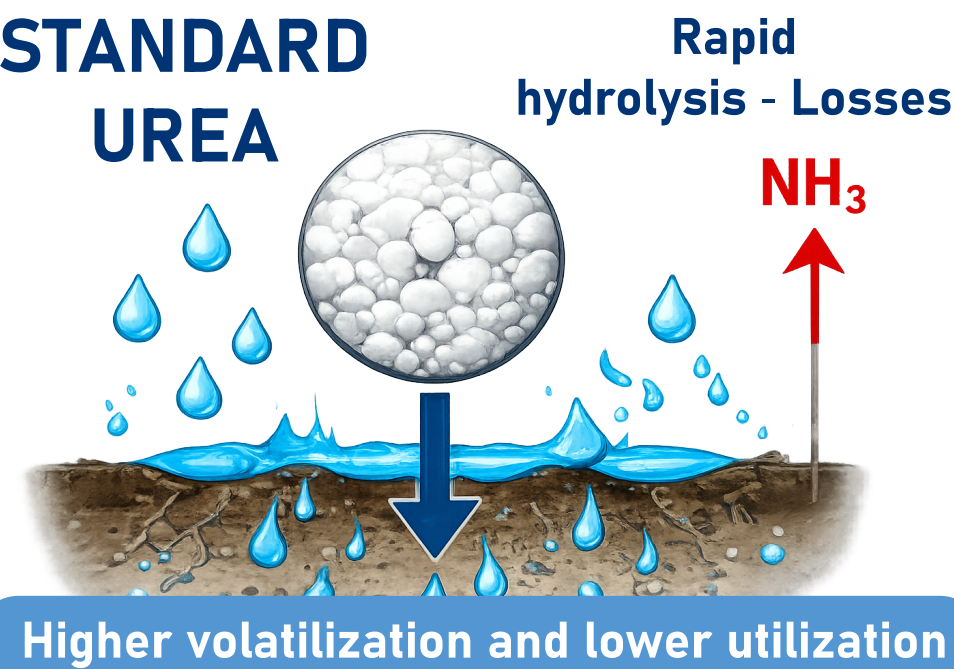
STANDARD UREA

46%	
Fast	
High	
High	
Medium	
Low	
Medium	
Good	
Medium	
Low	
Higher	

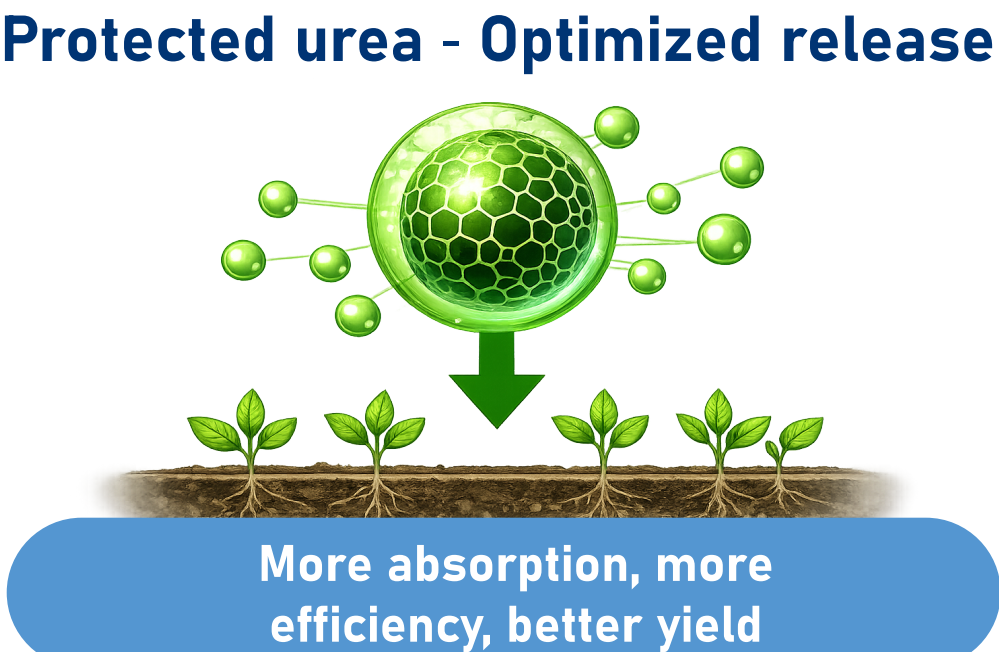
NANO-STABILIZED UREA

45–46%	
Controlled	
Low	
Low	
High	
High	
High	
Superior	
High	
Medium–High	
Lower	

MECHANISM OF ACTION



NANO-STABILIZED UREA



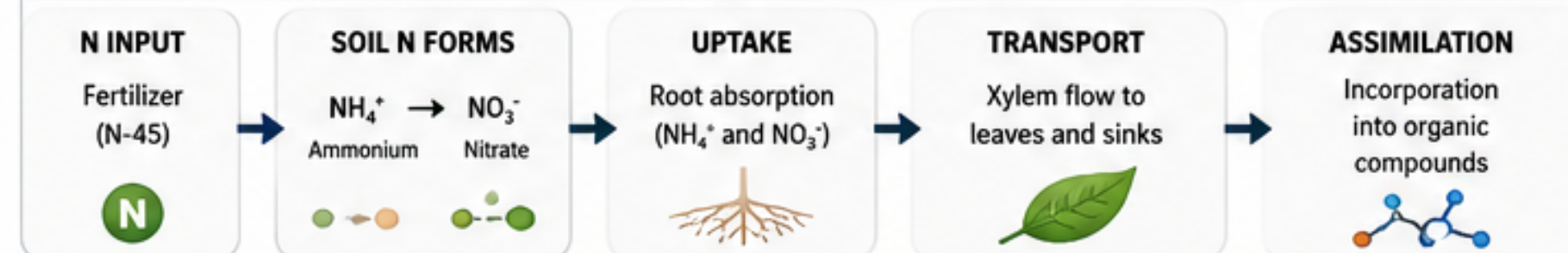
HOW MICRONUTRIENTS ENHANCE NITROGEN DYNAMICS, METABOLISM AND EFFICIENCY IN CROPS



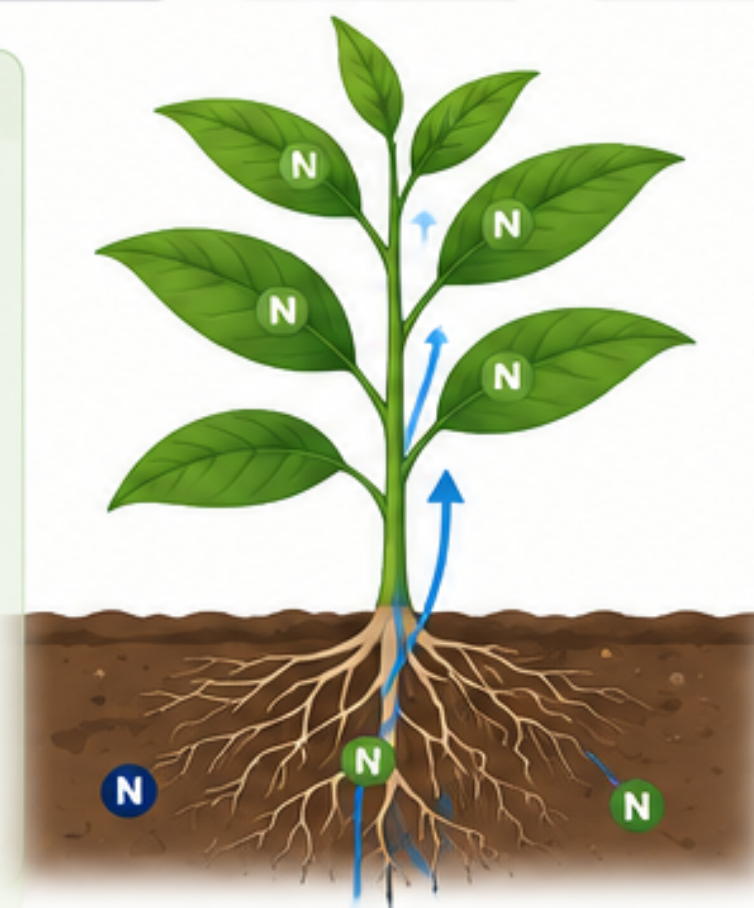
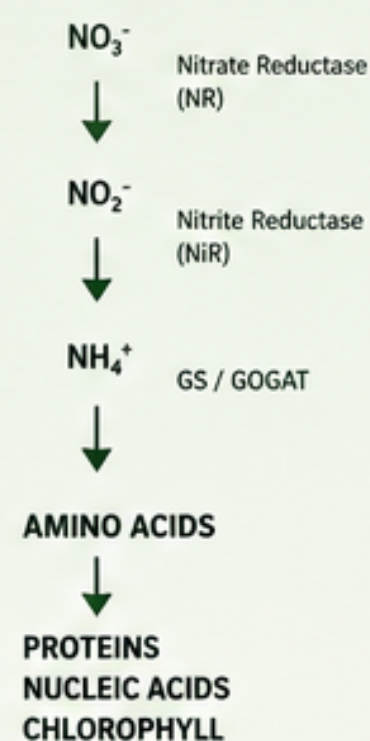
N-45 NANO COMPLEX PROVIDES:

- 45% Total Nitrogen (N)** in highly available form
- Chelated Micronutrients** EDTA Zinc, EDTA Manganese, Molybdenum and Nickel
- Low Salinity Index** safe for root and foliar applications
- High Solubility and Stability** uniform nutrient solution and maximum absorption

1. NITROGEN DYNAMICS IN THE SOIL-PLANT SYSTEM



KEY NITROGEN PATHWAYS



2. ROLE OF MICRONUTRIENTS ON NITROGEN METABOLISM

- Activate key enzymes in N assimilation
- Improve N uptake, transport and redistribution
- Increase N use efficiency and reduce losses
- Enhance growth, photosynthesis and yield

N LOSSES (REDUCED BY MICRONUTRIENTS)



3. HOW EACH MICRONUTRIENT ENHANCES NITROGEN USE EFFICIENCY

Zn
ZINC
(EDTA)

- Cofactor of Carbonic Anhydrase and Alcohol Dehydrogenase.
- Improves protein synthesis and auxin production.
- Enhances root growth and N uptake.



Mn
MANGANESE
(EDTA)

- Activates Nitrate Reductase (NR) in the conversion of NO_3^- to NO_2^- .
- Essential for photosynthesis (PSII function).
- Improves carbohydrate formation and N assimilation.



Better NR activity
= More available N

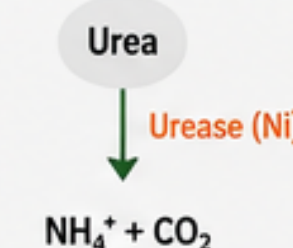
Mo
MOLYBDENUM

- Cofactor of Nitrate Reductase (NR) and Nitrogenase.
- Essential for the final step of NO_3^- reduction.
- Improves N use efficiency and reduces nitrate accumulation.

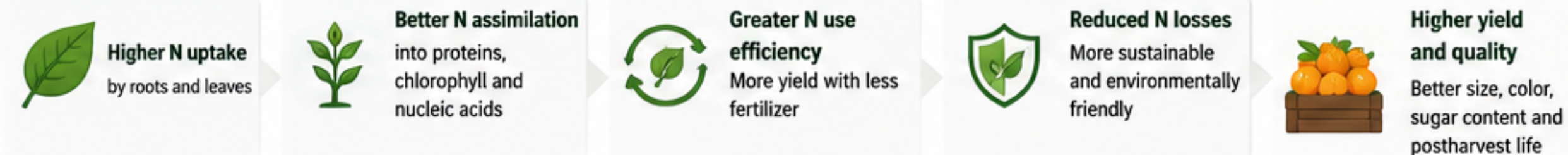


Ni
NICKEL

- Cofactor of Urease enzyme.
- Supports ureide and urea metabolism.
- Enhances germination, enzyme activity and N remobilization.



4. RESULT: MORE N EFFICIENCY, MORE PRODUCTIVITY



RECOMMENDED APPLICATION IN CITRUS

- Foliar application** 200–300 ml / 100 L of water
- Dose** 4–5 L/ha
- Applications** 3–4 times per season (Sprouting – Pre-flowering – Fruit set – Fruit enlargement)
- Best time** Early morning or late afternoon



N-45 NANO COMPLEX: The perfect synergy of high nitrogen and chelated micronutrients for maximum nitrogen efficiency and higher crop performance.

NITROGEN ABSORPTION IN THE LEAF: UREA, NITRATE AND AMMONIUM

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NANO COMPLEX

1 ABSORPTION THROUGH THE CUTICLE AND STOMATA



The nutrient passes through the cuticle and epicuticular waxes by diffusion or through channels, or enters through the stomata.

2 PENETRATION



The nutrient crosses the cell wall and the plasma membrane to enter the cytoplasm.

3 INCORPORATION INTO CELLULAR METABOLISM



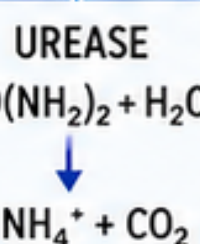
The absorbed nitrogen is transformed and incorporated into organic compounds in the chloroplasts, vacuoles and cytosol.

1. NITROGEN IN THE FORM OF UREA $\text{CO}(\text{NH}_2)_2$



CUTICLE (cuticular route) STOMA (stomatal route)

UREA
 $\text{CO}(\text{NH}_2)_2$



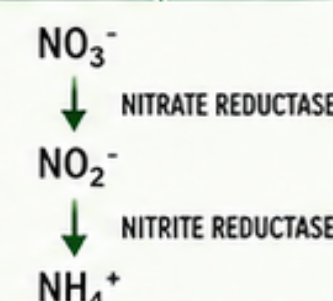
INCORPORATION
 $\text{NH}_4^+ \rightarrow$ AMINO ACIDS
 $\rightarrow$ PROTEINS, CHLOROPHYLL, NUCLEIC ACIDS, ETC.

2. NITROGEN IN THE FORM OF NITRATE NO_3^-



STOMA (stomatal route)

NITRATE
 NO_3^-



INCORPORATION
 $\text{NH}_4^+ \rightarrow$ AMINO ACIDS
 $\rightarrow$ PROTEINS, CHLOROPHYLL, NUCLEIC ACIDS, ETC.

3. NITROGEN IN THE FORM OF AMMONIUM NH_4^+



STOMA (stomatal route)

AMMONIUM
 NH_4^+

INCORPORATION
 $\text{NH}_4^+ \rightarrow$ AMINO ACIDS
 $\rightarrow$ PROTEINS, CHLOROPHYLL, NUCLEIC ACIDS, ETC.

CUTICLE (EPICUTICULAR WAXES)

UPPER EPIDERMIS

PALISADE MESOPHYLL

SPONGY MESOPHYLL

LOWER EPIDERMIS



INFLUENCING FACTORS:

Solution pH, humidity, temperature, concentration, formulation, cuticle quality and light.



MAINLY APOLAR DIFFUSION

Urea (neutral) diffuses more easily; NO_3^- and NH_4^+ require channels or transporters.



EFFICIENCY:

It depends on the N form, environmental conditions and the physiological state of the leaf.

- Urea pathway
- Nitrate pathway
- Ammonium pathway



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