



Nutribor[®]



Nutrimix[®]

Foliar Micronutrients for Broad Acre Crops

- Higher yield and better quality
- Balanced trace element supply for healthy crops
- Insurance against deficiencies of micronutrients
- Crop adapted nutrient ratio
- Optimal absorption from chelated nutrients

Nutrimix®/Nutribor®

The importance of micronutrient availability

According to Liebig's Law of the minimum, any essential plant nutrient which is not in sufficient supply limits crop yield.

Law of minimum

The element which is in shortest supply (in this case K) limits the yield. (J. v. Liebig 1803–1873)



Soil conditions for micronutrient availability

General benefits of foliar plant nutrition

- Highly efficient nutrient application under adverse soil conditions (high or low pH, drought, wet conditions, light soils, low nutrients, etc.)
- Maximum exploitation of yield potential
- Optimal supplement to traditional soil fertilization
- Crop strengthening under stress situation (pest & diseases, extreme climatic conditions, etc.)

Soil conditions	Manganese	Zinc	Boron	Copper	Molybdenum
pH > 7.0	--	---	--	---	++
pH < 5.5	+++	+	+	++	--
very wet	+	+	---	+	---
very dry	---	++	---	---	---
high content of org. matter	++	---	++	---	-
clay content > 20%	--	---	---	-	---
sandy soils	--	---	---	---	---

---: very high deficiency --: high deficiency -: deficiency
 +++: very high availability ++: high availability +: availability
 Knittel et al, 1999



Micronutrient facts

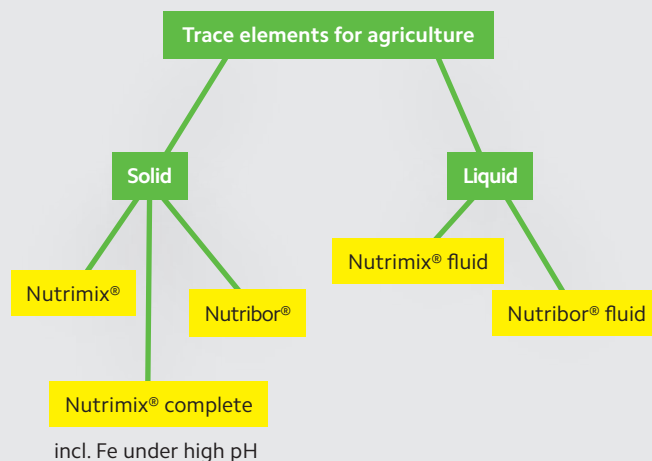
Brief key to deficiency symptoms

Symptoms	Deficiency
Symptoms appearing first on older leaves: Chlorosis starting from leaf tips Chlorosis mainly between veins (which remain green) Brownish, greyish, whitish spots (e.g. on cereals)	N Mg Mn
Symptoms appearing first on younger leaves: Mottled yellow-green leaves with yellowish veins Mottled yellow-green leaves with yellowish veins Brownish black spots (e.g. on legumes, potatoes) Youngest leaf has white tip Youngest leaf is brownish or dead (e.g. on beet)	S Fe Mn Cu B

The COMPO EXPERT solution

- Nutrimix® and Nutribor® are fully water soluble micro element fertilizers with special emphasis on Cu, Mn, Zn and B
- As a liquid solution COMPO EXPERT offers Nutrimix® fluid and Nutribor® fluid for more convenience
- To improve foliar uptake the micronutrients are chelated in solution with EDTA

Trace elements for agriculture



Nutrimix®

Nutrimix® is especially designed for a balanced nutrition of cereals.

Product composition

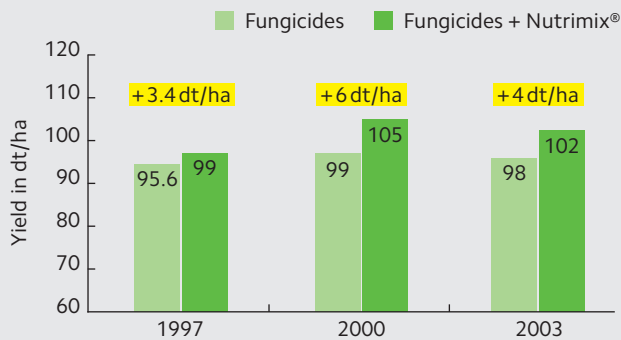
Nutrient	Nutrimix® %
Copper*	3.0
Manganese*	4.0
Molybdenum	0.04
Zinc*	3.0
Sulphur	15.0
Nitrogen	8.0

* as Chelate of EDTA

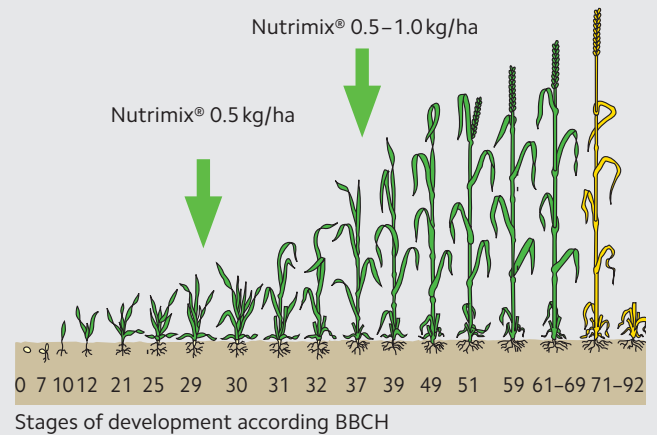
Foliar application recommendations

Crop	Number of applications per growing period	Application rate kg/ha
Wheat	2-3	1.0-1.5
Winter Barley	2-3	1.0-1.5
Spring Barley	1-2	1.0
Oats	2-3	1.0
Rye	2-3	1.0
Triticale	2-3	1.0
Rice	2-4	1.0

Trial results Nutrimix® in wheat



Time of application



- Significant yield increase for Nutrimix® in official trials, even at high yield levels
- Nutrimix® contributes to high yields under difficult growing conditions

- Tillering: improvement of tillers per plant and spikelets per spike = more yield
- Flag leaf: improvement of grain filling = more yield



Nutribor®

For Boron demanding crops (oil crops, sugar beets, cotton, etc.) and Boron deficient growing conditions (sandy soils, high pH, etc.)

Product composition

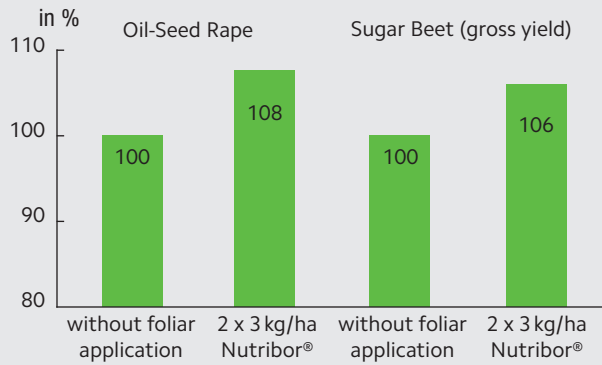
Nutrient	Nutribor® %
Boron	0.8
Manganese*	1.0
Molybdenum	0.04
Zinc*	0.1
Magnesium	5.0
Sulphur	12.0
Nitrogen	6.0

* as Chelate of EDTA

Foliar application recommendations

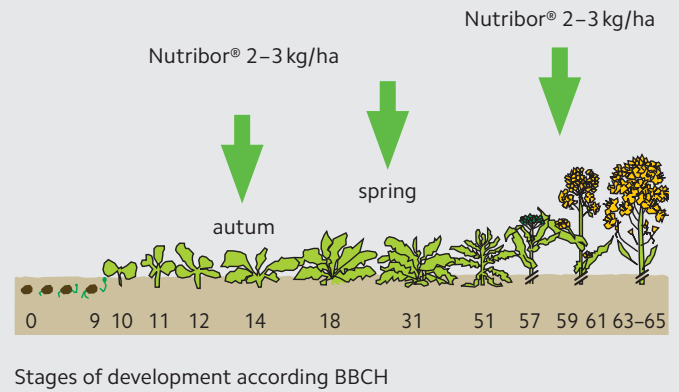
Crop	Number of applications per growing period	Application rate kg/ha
Oil-Seed Rape	2-3	3.0-4.0
Sugar Beets	1-2	3.0-4.0
Sun-Flower	2-3	2.0-4.0
Maize	3-4	3.0-4.0
Potatoe	2-3	2.0-4.0
Cotton	3-4	1.0-2.0
Tobacco	3-4	1.0-2.0
Sugar Cane	3-4	2.0-4.0

Trial results Nutribor® in all results



- Significant yield increases in various scientific trials
- Also better quality of oil seed rape and sugar beets
- Nutribor® also prevents crops from latent deficiencies

Time of application



- In winter oil seed rape 2-3 applications are required
- Excellent compatibility with common plant protection products



Nutrimix®/Nutribor®

Product	Composition	Characteristics	Presentation	Use
	<p>Homogenous powder: 95% < 1.0mm</p> <p>Not available in South Africa</p>	<p>Highly concentrated multi micronutrient fertilizer with N and S</p> <ul style="list-style-type: none"> - 7.6% N, 13% S, 3% Cu*, 4% Mn*, 0.04% Mo, 3% Zn* - for cereals - foliar application <p>* Cu, Mn, Zn chelated by EDTA.</p>	<p>5 kg bags 15 kg bags</p> <p>Pallet size: 48 x (3 x 5 kg) = 720 kg 60 x 15 kg = 900 kg</p>	<p>Spray application in most crops: 1.0–3.0 kg/ha</p>
	<p>Homogenous powder: 95% < 1.0mm</p>	<p>Highly concentrated multi micronutrient fertilizer with N, S and Fe</p> <ul style="list-style-type: none"> - 3.5% N, 9% S, 3% MgO, 3% Cu*, 3% Fe*, 4% Mn*, 0.04% Mo, 3% Zn* - for cereals - foliar application <p>* Cu, Fe, Mn, Zn chelated by EDTA.</p>	<p>1 kg cartons 15 kg bags</p> <p>Pallet size: 40 x (16 x 1 kg) = 640 kg 60 x 15 kg = 900 kg</p>	<p>Spray application in most crops: 1.0–3.0 kg/ha</p>
	<p>Liquid</p> <p>Not available in South Africa</p>	<p>Liquid multi micronutrient fertilizer</p> <ul style="list-style-type: none"> - 8% K₂O, 2% Cu*, 3% Mn*, 0.033% Mo, 2% Zn* - for various crops (e.g. potatoes) - foliar application - liquid formulation for more convenience <p>* Cu, Mn, Zn chelated by EDTA.</p>	<p>Can: 10 l</p> <p>Pallet size: 60 x 10 l IBC</p>	<p>Spray application in cereals: 1–2 litres/ha</p>
	<p>Homogenous powder: 95% < 1.0mm</p>	<p>Highly concentrated multi micronutrient Boron fertilizer with N, Mg and S</p> <ul style="list-style-type: none"> - 6% N, 5.00% MgO, 9% S, 8% B, 1% Mn*, 0.04% Mo, 0.10% Zn* - for various crops (e.g. canola, maize, cotton, tobacco) - foliar application <p>* Mn, Zn chelated by EDTA.</p>	<p>1 kg cartons 5 kg bags 15 kg bags</p> <p>Pallet size: 40 x (16 x 1 kg) = 640 kg 48 x (3 x 5 kg) = 720 kg 60 x 15 kg = 900 kg</p>	<p>Spray application in most crops: 2.0–4.0 kg/ha</p>
	<p>Liquid</p> <p>Not available in South Africa</p>	<p>Liquid multi micronutrient fertilizer</p> <ul style="list-style-type: none"> - 8% B, 0.1% Mn*, 0.04% Mo, 0.10% Zn* - for cereals - foliar application - liquid formulation for more convenience <p>* Mn, Zn chelated by EDTA.</p>	<p>Can: 10 l</p> <p>Pallet size: 60 x 10 l IBC</p>	<p>Spray application in cereals: 1–2 litres/ha</p>