



**Nutribor<sup>®</sup>**



**Nutrimix<sup>®</sup>**

## **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

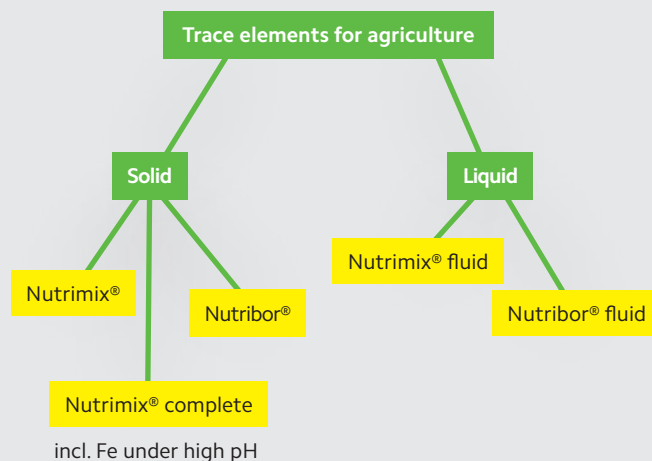
### Brief key to deficiency symptoms

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

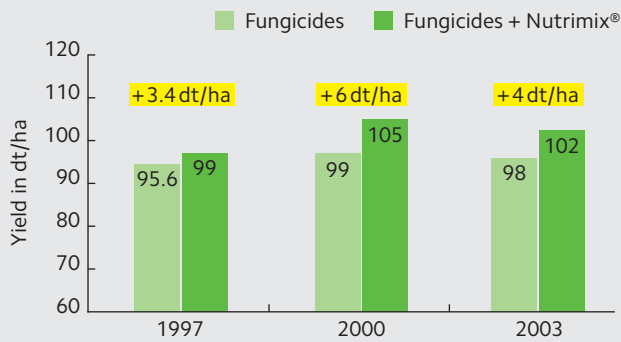
Nutrient	Nutrimix® %
Copper*	3.0
Manganese*	4.0
Molybdenum	0.04
Zinc*	3.0
Sulphur	15.0
Nitrogen	8.0

\* as Chelate of EDTA

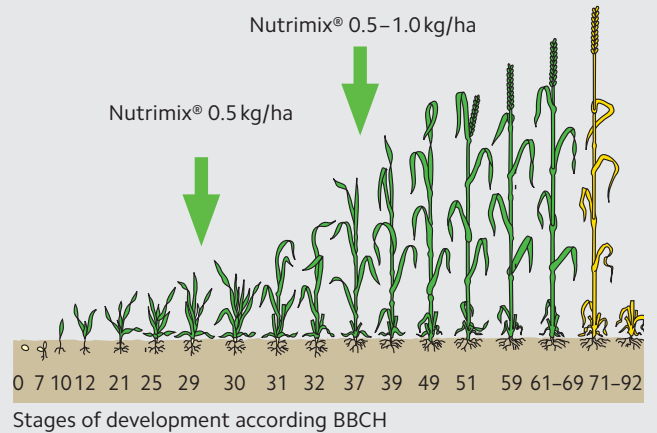
## Foliar application recommendations

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

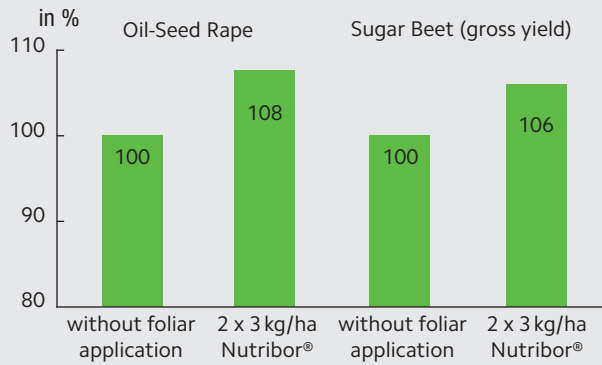
Nutrient	Nutribor® %
Boron	0.8
Manganese*	1.0
Molybdenum	0.04
Zinc*	0.1
Magnesium	5.0
Sulphur	12.0
Nitrogen	6.0

\* as Chelate of EDTA

## Foliar application recommendations

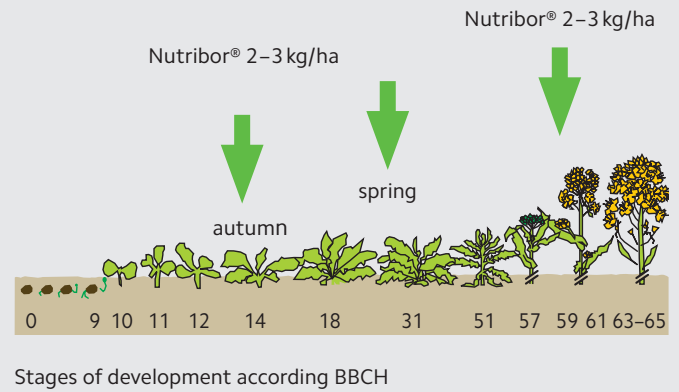
Crop	Number of applications per growing period	Application rate kg/ha
Oil-Seed Rape	2-3	3.0-4.0
Sugar Beets	1-2	3.0-4.0
Sun-Flower	2-3	2.0-4.0
Maize	3-4	3.0-4.0
Potatoe	2-3	2.0-4.0
Cotton	3-4	1.0-2.0
Tobacco	3-4	1.0-2.0
Sugar Cane	3-4	2.0-4.0

## 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
	Homogenous powder: 95% < 1.0mm	Highly concentrated multi micronutrient fertilizer with N and S - 7.6% N, 13% S, 3% Cu*, 4% Mn*, 0.04% Mo, 3% Zn* - for cereals - foliar application  * Cu, Mn, Zn chelated by EDTA.	5 kg bags 15 kg bags  Pallet size: 48 x (3 x 5 kg) = 720 kg 60 x 15 kg = 900 kg	Spray application in most crops: 1.0–3.0 kg/ha
	Homogenous powder: 95% < 1.0mm	Highly concentrated multi micronutrient fertilizer with N, S and Fe - 3.5% N, 9% S, 3% MgO, 3% Cu*, 3% Fe*, 4% Mn*, 0.04% Mo, 3% Zn* - for cereals - foliar application  * Cu, Fe, Mn, Zn chelated by EDTA.	1 kg cartons 15 kg bags  Pallet size: 40 x (16 x 1 kg) = 640 kg 60 x 15 kg = 900 kg	Spray application in most crops: 1.0–3.0 kg/ha
	Liquid	Liquid multi micronutrient fertilizer - 8% K <sub>2</sub> O, 2% Cu*, 3% Mn*, 0.033% Mo, 2% Zn* - for various crops (e.g. potatoes) - foliar application - liquid formulation for more convenience  * Cu, Mn, Zn chelated by EDTA.	Can: 10 l  Pallet size: 60 x 10 l IBC	Spray application in cereals: 1–2 litres/ha
	Homogenous powder: 95% < 1.0mm	Highly concentrated multi micronutrient Boron fertilizer with N, Mg and S - 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  * Mn, Zn chelated by EDTA.	1 kg cartons 5 kg bags 15 kg bags  Pallet size: 40 x (16 x 1 kg) = 640 kg 48 x (3 x 5 kg) = 720 kg 60 x 15 kg = 900 kg	Spray application in most crops: 2.0–4.0 kg/ha
	Liquid	Liquid multi micronutrient fertilizer - 8% B, 0.1% Mn*, 0.04% Mo, 0.10% Zn* - for cereals - foliar application - liquid formulation for more convenience  * Mn, Zn chelated by EDTA.	Can: 10 l  Pallet size: 60 x 10 l IBC	Spray application in cereals: 1–2 litres/ha