



# Trace Element Suspensions



## Basfoliar<sup>®</sup> flo

- Highly concentrated flowable suspensions
- For crop-safety and high performance in foliar nutrition
- Low salinity permits higher application rates
- High compatibility with plant protection products



## General features

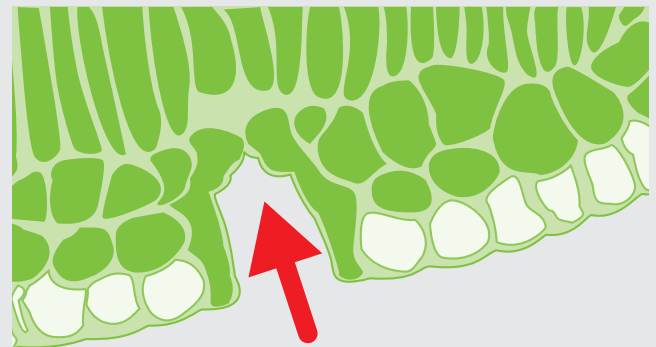
- **Definition:** A suspension consists of a solid product, present as microparticles ( $< 10\ \mu\text{m}$ ) which are suspended in a liquid, the density of which keeps the particles in uniform suspension.
- High concentration up to 75 % (weight / volume).
- Highest efficiency for transport, storage and application.
- Excellent crop safety even at high concentrations (very low salinity).
- Available in single, double and multi-nutrient formulations.



Dispersal of microparticles in water

## How does it work?

- Basfoliar® flo is designed to be completely miscible with water and pesticides for foliar application.
- High concentration of micronutrients allows for continuous and long lasting nutrient supply.
- Particle size below  $10\ \mu\text{m}$ : this facilitates stomatal uptake as the major form of nutrient uptake.
- This pathway is highly efficient.



Plants can effectively absorb nutrient microparticles through the leaf pores (stomata).

## The benefits

### High concentration

- Basfoliar® flo contains higher nutrient levels per unit of volume.
- Small particle size results in high uptake rates.

### Low salinity

- Lowest phytotoxicity risk.
- High plant tolerance also in case of overdosing and/or susceptible /sensitive species.
- Comparison: 0.1 % Zn-Nitrate (10% Zn) EC 370 µm/cm vs. 0.1 % Basfoliar® Zn flo (42 % Zn) EC 20 µm/cm.



3 times dose

Basfoliar® Excellent flo, applied in citrus in Spain: no burning, perfect leaf adhesion and absorption.



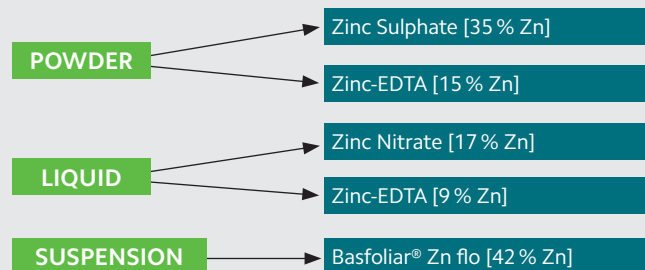
5 times dose



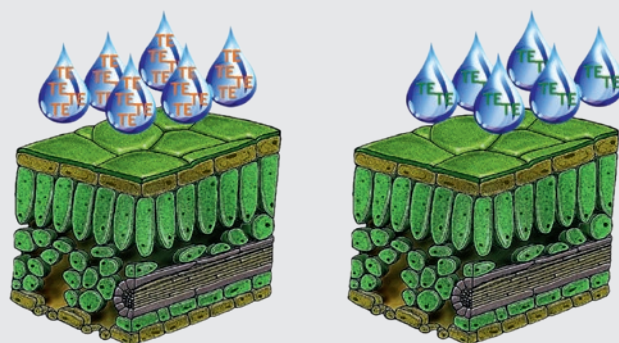
10 times dose

### Convenience

- Easy preparation of foliar tank mix.
- No dissolving/extensive mixing required.
- Suitable for airplane ULV application.
- Miscible with most PPP.



High concentration: example zinc.



Trace element suspension

Conventional trace elements

### Plant compatibility of Basfoliar® Mn flo



Brown deposits visible on the leaf blade after a single application of 4 x recommended rate of Mn concentration (7.5 g Mn/l).

No injury of the tissue caused by Basfoliar® Mn flo after two weeks.

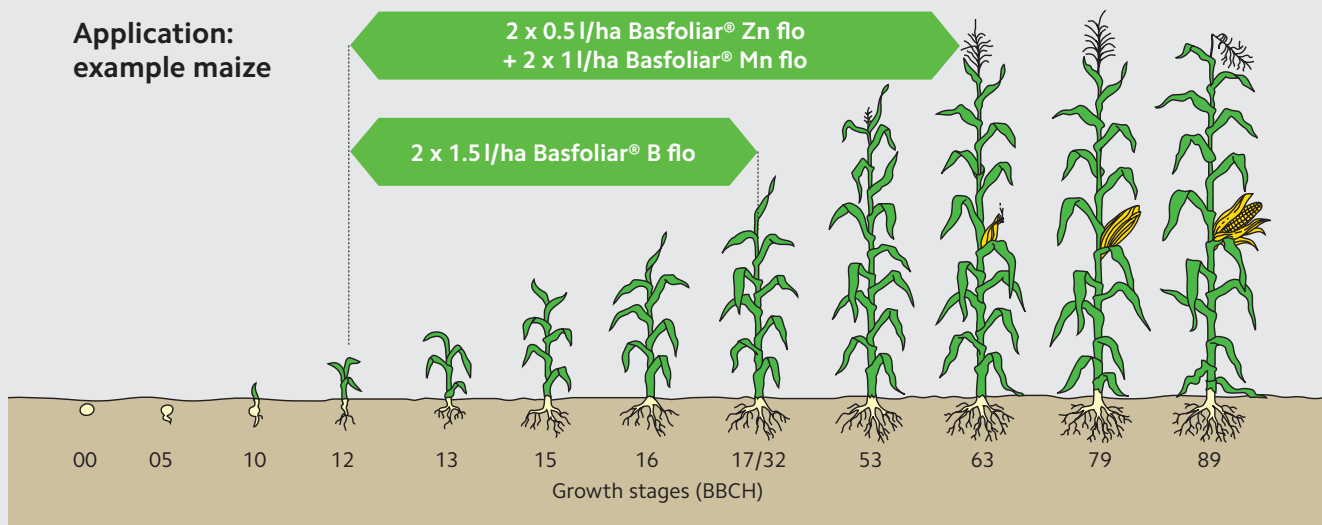


## Composition

Products	Nutrient	% w/w	% w/v
Basfoliar® B flo	B	10	13
Basfoliar® Ca flo	Ca	35	59.9
Basfoliar® CaMg flo	CaO	20	36
	MgO	15	27
Basfoliar® Cu flo	Cu	25	39.8
Basfoliar® Excellent flo	CaO	12.3	19.2
	B	6	9.4
	Mn	3.5	5.5
	Zn	1	1.6
Basfoliar® Mg flo	MgO	34	51

Products	Nutrient	% w/w	% w/v
Basfoliar® Mn flo	Mn	27.4	49.3
Basfoliar® Multi flo	MgO	19	32.3
	Cu	3.1	5.3
	Mn	8.1	13.8
	Zn	1.6	2.7
Basfoliar® Triple flo	Cu	5	9.3
	Mn	12	22.2
	Zn	18	33.3
Basfoliar® Zn flo	Zn	42	75.6
Basfoliar® ZnMn flo	Mn	14.4	25.9
	Zn	20	36

## Recommendations for foliar application



Crops	No. of applications	Stage	Total rate per application (Litre/ha)
<b>Recommendation for combined Basfoliar® Cu flo &amp; Basfoliar® Zn flo application</b>			
Sugar Cane	1	30 to 40 days after crop emergence	2.0–4.0
Onion	1–2	2 weeks after transplanting. In a no-till cropping system, when the crop is up to 15 cm high. If necessary, repeat 25 days after the first application.	2.0–4.0
Carrot	1–2	when the crop up to 15 cm high. If necessary, repeat 14 days after the first application.	2.0–4.0
Beans	1–2	25 to 40 days after germination. If necessary, repeat the application.	2.0–4.0
Sunflower	1–2	20 to 30 days after germination. If necessary, repeat the application.	2.0–4.0
Citrus	3–6	3–6 applications during the entire crop cycle. The first application at flower bud formation stage; with 30 to 45 days intervals	2.0

Product /crops	No. of application	Stage	Rate per application (Litre/ha)
<b>Basfoliar® Zn flo</b>			
Cereals	1-2	autumn or spring (BBCH 32)	0.4
Maize	1-2	at 8-leaf stage	0.4
Potato	1-2	in combination with blight programme	0.4
<b>Basfoliar® Mn flo</b>			
Cereals	1-2	from tillering	0.8-1.2
Oilseed rape	1-3	from rosette stage up to 3 times	0.5
Sugar beet	1-2	from 4- to 6-leaf stage up to 2 times	0.5
Maize	2-3	from 3-leaf stage	0.8-1.2
Potato	1-3	until tuber maturity up to 3 times	0.5
<b>Basfoliar® B flo</b>			
Oilseed rape	2-3	autumn (BBCH 12/16) spring BBCH 32 BBCH 61	3.0-4.0 2.0-3.0 1.0
Sugar beet	2	from 2-leaf stage (BBCH 12) before row closing (BBCH 39)	2.0-4.0 2.0-4.0
Maize	2-3	from 6-leaf stage (BBCH 14) BBCH 17/32	1.0-2.0 1.0-2.0
Potato	2	from start of tuber development (BBCH 39) until start flowering (BBCH 60)	1.5-3.0 1.5-3.0
Sunflowers	1	during main veg. growth	4.0
Brassicae, carrots, vegetable ...	1-2	from 4- to 6-leaf stage 1 <sup>st</sup> appl.	1.0-2.5
<b>Basfoliar® Zn flo/Basfoliar® Mn flo</b>			
Potato	1-2	1 week after complete plant emergence	0.8-1.2
Horticultural crops	1-2	at 4- to 6-leaf stage	0.8-1.2
Grapevine	2	inflorescences visible to early fruit set	0.8-1.2
Citrus	2	in springtime and during vegetative growth in autumn	1-2
Kiwi trees	1-2	shoot 15 cm long, if necessary repeat after 10-14 days	0.5
Apple / pear	3-6	3-6 applications during the cycle the first application at bud formation stage; with 30 to 45 days intervals	2.0
<b>Basfoliar® Excellent flo</b>			
Oilseed rape	1 1	after 4-leaf stage at 5- to 6-leaf stage	1.0-1.5 1.0-1.5
Sugar beet	1-2	from 2-leaf stage (BBCH 12)	2.0-4.0
Potato	1-2	vegetative growth, before flowering	1.0
Sunflowers	1-2	at 4- to 6-leaf stage	3.0
Fruit trees, vineyards	1-2	before flowering, after fruit set	1.5
Brassicae, carrots, vegetable ...	1-2	at all crop stages	3.0



## Trial results

### Beans

- Curative use against Zn deficiency in beans.
- Superior performance compared to sulphates.

### Zn deficiency and recovery after treatment



Zn-deficiency symptoms



Symptoms after 2 applications of ZnSO<sub>4</sub>



No symptoms after 2 applications of Basfoliar® Zn flo

### Cabbage

- Curative use to treat Cu-deficiency in chinese cabbage.
- Superior performance compared to sulphates.
- Basfoliar® Cu flo is also effective against fungal diseases such as Downy Mildew.

### Effect of leaf application of Cu suspension or CuSO<sub>4</sub> on chinese cabbage on Cu deficient plants in nutrient solution



Cu supply in solution (positive control)

No Cu supply via solution

Application of Basfoliar® Cu flo

Application of CuSO<sub>4</sub>

foliar application



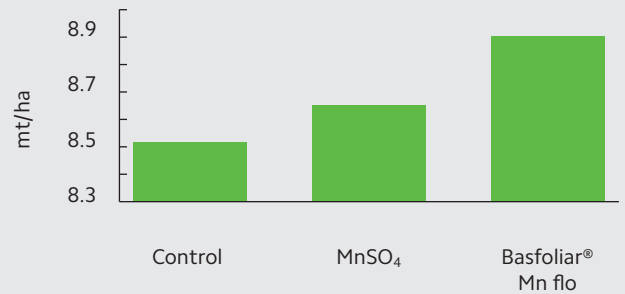


## Wheat

- +4.7 % (vs. control) yield increase in winter wheat after using Basfoliar® Mn flo.

Product	Rate (l/ha)
MnSO <sub>4</sub>	0.8 l/ha
Basfoliar® Mn flo	0.8 l/ha

## Wheat, Germany 2009



Time of application:  
first application in BBCH 29  
second application in BBCH 49

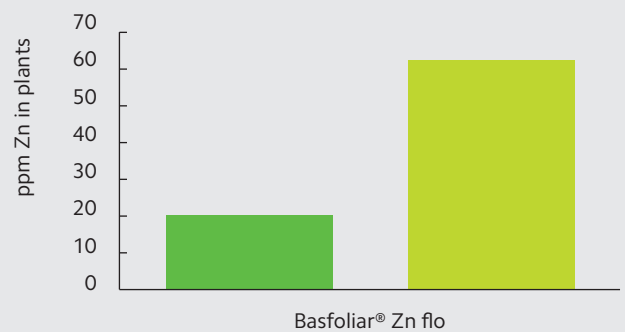


## Grapevine

- Significantly improved Zn uptake by using Basfoliar® Zn flo.

Product	Rate (l/ha)
Basfoliar® Zn flo	1.2 l/ha

## Grapevine, Italy 2010



1 application after flowering

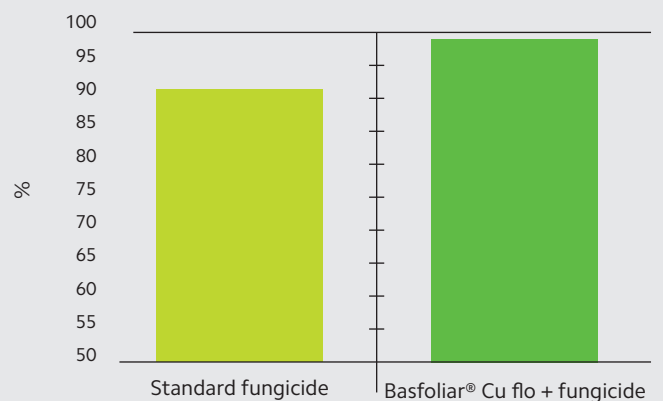


## Tomato

- Almost 100 % protection of Tomato from Downy Mildew by Basfoliar® Cu flo.

Product	Concentration
Standard fungicide	Recommended application
Basfoliar® Cu flo + fungicide	0.5 %

## Effectiveness against Downy Mildew, Italy 2012



1 application before flowering



## Basfoliar® flo product range



Product	Composition	Characteristics	Packaging
Basfoliar® B flo	10 % B  Density: 1.3 kg/l	Concentrated suspension fertilizer. For the preventative and curative treatment in agricultural and horticultural crops.	Canister: 1l, 10l, 1,000l  Pallet size: 40 x 12 x 11 = 480l 75 x 101 = 750l 1,000l
Basfoliar® Ca flo	35 % CaO  Density: 1.71 kg/l		
Basfoliar® CaMg flo	20 % CaO 15 % MgO  Density: 1.8 kg/l		
Basfoliar® Cu flo	25 % Cu  Density: 1.59 kg/l		
Basfoliar® Excellent flo	12.3 % CaO 6 % B 3.5 % Mn 1 % Zn  Density: 1.56 kg/l		
Basfoliar® Mg flo	34 % MgO  Density: 1.5 kg/l		
Basfoliar® Mn flo	27.4 % Mn  Density: 1.8 kg/l		
Basfoliar® Multi flo	19 % MgO 3.1 % Cu 8.1 % Mn 1.6 % Zn  Density: 1.7 kg/l		
Basfoliar® Triple flo	5 % Cu 12 % Mn 18 % Zn  Density: 1.85 kg/l		
Basfoliar® Zn flo	42 % Zn  Density: 1.8 kg/l		
Basfoliar® ZnMn flo	14.4 % Mn 20 % Zn  Density: 1.8 kg/l		

For information on application data please get in touch with your local supplier, visit our website: [www.compo-expert.com](http://www.compo-expert.com) or get in touch by e-mail: [info@compo-expert.com](mailto:info@compo-expert.com)