Pure Products
BIO
Healthy Plants

PRODUCT INFORMATION

2025

PHYTO solution

... Plant nutrition with system

Preamble

The PHYTOsolution-3-Step-System:

- Leaf/ plant tissue analyses in advance
- Identification of nutrient deficiencies
- Specific fertilisation and support for the culture

PHYTOsolution with it`s location in Freyburg/Unstrut - in the eastern part of Germany near Leipzig - is specialized in the development and production of biostimulants and liquid fertilisers for foliar or soil application in the areas of farming, horticulture, vegetable, fruit and wine, home and garden.

PHYTOsolution is your partner for innovative concepts in plant nutrition. Besides a wide product range we also offer individual help. Leaf analyses and advisory services help you to keep your cultures in a well balanced nutrition.

PHYTOsolution tries to use raw materials which confirm to EU regulations for organic growing whenever possible. The micronisation of natural rock flours enables us to formulate highly concentrated suspensions for various nutrients. A second speciality is the use of natural low-molecular weight Carboxylic Acids as complexing agents and physionutrient for water soluble nutrient fertilisers. **This innovative technology allows nutrient supply to all cultures even under dry and hot wheather conditions.** Our products are very easy to handle and very well tolerated by plants and the environment.

PHYTOsolution keeps the product line always up to date to the state of scientific knowledge and optimizes the recipes or expands the range with new useful products.

With our special service, a fast and meaningful „leaf analysis“ we also guarantee an optimal and efficient use of our products.

LEAF ANALYSIS

PHYTOsolution closely cooperates with the „**I**nstitut für **A**grar- und **U**mweltanalytik“ in Freyburg. **IAU** analyses and evaluates soil and plant tissues within a short period of time. The results dislose nutrient deficiencies of any culture. A following well-directed treatment with single nutrients helps the culture to recover immediately.

We will be happy to cooperate with you and look forward to personal contacts.

With best regards,

Werner Bannach

Product overview

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Summary of fertilisers

Product * amounts given in % w/w and g/l	catalogue page	macro nutrient*						micro nutrients*						further*		pH	density	Recommentations	Organic growers
		N	P_2O_5	K_2O	Ca	Mg	S	B	Cu	Fe	Mn	Mo	Zn	SiO_2	Algen		kg/l	(leaf application)	
Organic N-Fertilizer (Amino acids)																			
Plantosol®	8	9,0% 108 g/l														5,5	1,2	to reduce stress, to repel of ground game, to improve plant protection: all cultures 2-7,5 l/ha	EU; FiBL D
Bio-Plantosol	8	3,5% 39 g/l														4	1,1	to reduce stress, to repel of ground game, to improve plant protection: all cultures 2-7,5 l/ha	EU; FiBL D
Plantosol®N65	9	6,5% 72 g/l														6	1,1	all cultures up to 1,5%ig	EU; FiBL D; AT
PhytoGreen®-Booster	10	8,0 % 96 g/l													x	5	1,2	Vegetables/Fruits/Grapes 0,3-1 l/ha	
PhytoGreen®-BioBooster	10	3,5% 39 g/l													x	5	1,1	Vegetables/Fruits/Grapes 0,3-1 l/ha	EU; FiBL D
NPK-Fertilizer Liquids																			
PhytoGreen-Urea liquid 40	11	18% 198 g/l														5	1,37	Arable crops/Vegetables/Fruits/Grapes 10-50 l/ha	
PhytoGreen-NPK 12-4-6	12	12% 145 g/l	4% 48 g/l	6% 73 g/l				0,01%	0,002%	0,02%	0,01%	0,001%	0,01%			5	1,2	Arable crops/Vegetables/Fruits/Ornamentals 2 – 8 l/ha	
PhytoGreen-NPK 8-8-6	12	8,0% 97 g/l	8%; 97 g/l	6% 73 g/l				0,01%	0,005%		0,01%		0,01%			6,5	1,2	Arable crops/Vegetables/Fruits/Ornamentals 2 – 8 l/ha	
PhytoGreen®-NPK 5-20-5	12	5,0% 65 g/l	20% 260 g/l	5% 65 g/l												1,2	1,3	Arable crops/Vegetables/Fruits/Ornamentals 5 – 10 l/ha	
PhytoGreen®-NPK 7-21-7	12	7,0% 93 g/l	21% 279 g/l	7% 93 g/l				0,02%		0,05%	0,05%					1,1	1,33	Arable crops/Vegetables/Fruits/Ornamentals 5 – 10 l/ha	
PhytoGreen®-NPK Plus (9-6-3+Mg+Microel.)	13	9,6% 120 g/l	6,4% 80 g/l	3,2% 40 g/l		1,2% 14,4 g/l		0,03%	0,006%		0,18%	0,0004 %	0,007%			2,2	1,22	Arable crops/Vegetables/Fruits/Ornamentals 2 l/ha	
PhytoGreen®-NP Liquid 7-18	14	7,0% 84 g/l	18% 216 g/l													8	1,2	Arable crops/Vegetables/Fruits/Ornamentals 5 – 10 l/ha	
PhytoGreen®-PK Plus (0-11-7+Mg+Mn)	15		11% 132 g/l	7% 84 g/l		0,6% 7,2 g/l					0,8% 9,6 g/l					2,7	1,2	Arable crops/Vegetables/Fruits/Ornamentals 1-4 l/ha	
PhytoGreen®-HiPhos (0-30-5+Mg)	16		31% 440 g/l	5% 74 g/l		3,4% 48,2 g/l										2	1,44	Arable crops 2,5-5 l/ha	
PhytoGreen®-NPK Complete (Feststoff)	17	20%	8%	14%		1,2%	9,7%	0,04%	0,2%	0,02%	0,26%	0,006%	0,14%			fest		Arable crops/Vegetables/Fruits/Ornamentals2,5–5kg/ha	
Bio NPK-Fertiliser Liquids																			
PhytoGreen®-Bio-NK	18	4% 52 g/l	0,1% 1,3 g/l	6,5% 84 g/l	0,8% 10 g/l		1% 13 g/l									5,5-6,5	ca. 1,2	Arable crops/Vegetables/Fruits/Grapes/Ornamentals 4-8 l/ha	EU; FiBL D
PhytoGreen®-Bio-NPK 2-5-8	18	2% 33 g/l	5% 67 g/l	8% 112 g/l	5,0% 80 g/l	0,1% 1,5 g/l	2,0% 30 g/l	0,0005 %	0,1% 1,5 g/l	0,1% 1,5 g/l	0,1% 1,5 g/l		0,1% 1,5 g/l		x	5,5-6,5	ca. 1,3	Arable crops/Vegetables/Fruits/Grapes/Ornamentals 4-8 l/ha	EU; FiBL D
PhytoGreen®-Bio-NPK 3-3-3	18	3,0% 38 g/l	3,0% 38 g/l	3,0% 38 g/l	4,4% 57 g/l	0,3% 3 g/l	1% 12 g/l	0,01%	0,1% 1,5 g/l	0,2% 3 g/l	0,2% 3 g/l		0,2% 3 g/l		x	5,5-6,5	ca. 1,4	Arable crops/Vegetables/Fruits/Grapes/Ornamentals 4-8 l/ha	EU; FiBL D
PhytoGreen®-Bio-NPK 4-1-5	18	4% 50 g/l	1% 13 g/l	5% 64 g/l	1,5% 20 g/l	0,3% 3,9 g/l	1% 13 g/l	0,0004 %		0,1% 1,3 g/l	0,1% 1,3 g/l		0,1% 1,3 g/l		x	5,5-6,5	ca. 1,3	Arable crops/Vegetables/Fruits/Grapes/Ornamentals 4-8 l/ha	EU; FiBL D
PhytoGreen®-Bio-NPK 8-3-4	18	8% 115 g/l	3% 45 g/l	4% 56 g/l	3%; 50 g/l	0,1% 1,5 g/l	0,7% 9g/l		0,1% 1,5 g/l	0,1% 1,5 g/l	0,1% 1,5 g/l		0,1% 1,5 g/l		x	5,5-6,5	ca. 1,4	Arable crops/Vegetables/Fruits/Grapes/Ornamentals 4-8 l/ha	EU; FiBL D
PhytoGreen®-Bio-N 6,5	18	6,5% 72 g/l														6	1,1	all cultures up to 1,5%ig	EU; FiBL D
PhytoGreen®-Bio-NPK 2-1-10	19	2% 24 g/l	1% 12 g/l	10% 120 g/l												5,5-6,5	ca. 1,2	Arable crops/Vegetables/Fruits/Grapes/Ornamentals 4-8 l/ha	EU; FiBL D
PhytoGreen®-Bio-NPK 3-4-3	19	2,5% 30 g/l	3,3% 40 g/l	2,5% 30 g/l	0,05% 0,6 g/l	1% 12 g/l	0,3% 3,6 g/l	10 mg/l	70 mg/l	4 mg/l	20 mg/l		70 mg/l			5,5-6,5	ca. 1,2	Arable crops/Vegetables/Fruits/Grapes/Ornamentals 4-8 l/ha	EU; FiBL D
PhytoGreen®-Bio-NPK 5-2-5	19	4,1% 50 g/l	1,6% 20 g/l	4,1% 50 g/l	0,3% 4 g/l	0,1% 1,4 g/l	0,02% 0,3g/l	6 mg/l	40 mg/l	4 mg/l	16 mg/l		30 mg/l			5,5-6,5	ca. 1,2	Arable crops/Vegetables/Fruits/Grapes/Ornamentals 4-8 l/ha	EU; FiBL D
PhytoGreen®-Bio-NPK 6-2-2	19	5,0% 60 g/l	1,7% 20 g/l	1,6% 20 g/l	0,4% 4,9 g/l	0,1% 1,4 g/l	0,02% 0,3g/l	5 mg/l	40 mg/l	5 mg/l	20 mg/l		30 mg/l			5,5-6,5	ca. 1,2	Arable crops/Vegetables/Fruits/Grapes/Ornamentals 4-8 l/ha	EU; FiBL D
PhytoGreen®-Bio-NPK 7-2-2	19	5,8% 70 g/l	1,7% 20 g/l	1,6% 20 g/l	0,05% 0,6 g/l	0,3% 2 g/l	1,0% 13 g/l	6 mg/l	30 mg/l	2 mg/l	12 mg/l		24 mg/l			5,5-6,5	ca. 1,2	Arable crops/Vegetables/Fruits/Grapes/Ornamentals 4-8 l/ha	EU; FiBL D
PhytoGreen®-Bio-NPK 8-3-2	19	6,3% 80 g/l	2,4% 30 g/l	1,6% 20 g/l	0,1% 1,3 g/l	0,2% 2,6 g/l	1% 13 g/l	10 mg/l	60 mg/l	5 mg/l	20 mg/l		50 mg/l			5,5-6,5	ca. 1,2	Arable crops/Vegetables/Fruits/Grapes/Ornamentals 4-8 l/ha	EU; FiBL D
PhytoGreen®-BioPearls	20	7% / 11%	0,2% / 0,3%	6% / 4%	1,3% / 8,5%	1,8% / 0,3%	8% / 1%	4 / 70 mg/kg	2 / 5 mg/kg	400 mg/kg	60 mg/kg	1 mg/kg	25 mg/l					all cultures 50-450 kg/ha	EU; FiBL D
Multiple Nutrient Fertilizer																			
PhytoGreen®-Ca-Mg-B Carbo	25				7,15% 100g/l	1,8% 25g/l		0,3% 4,2g/l								4	1,4	Vegetables/ Fruits 2-4 l/ha	
PhytoGreen®-Ca-Mg Carbo	26	5% 65 g/l			7,15% 93g/l	1,8% 23g/l										3	1,3	Vegetables/ Fruits 2-4 l/ha	
PhytoGreen®-ManganeseNitrate	27	7,7% 119 g/l									15% 235g/l					ca. 1,5	1,55	Arable crops/Vegetables/Fruits 1-2 l/ha	
PhytoGreen®-Silicon	28		5% 67 g/l	13% 174 g/l										7% 94 g/l		12	1,25	All cultures 1-3 l/ha	
PhytoGreen®-MultimicroMix Carbo	29					6,60%	6,40%	0,30%	0,50%	1,50%	1,50%	0,10%	2,00%			2	1,34	All cultures: foliar 5 l/ha, soil 4-8 l/ha	
Single Nutrient Fertilizer																			
PhytoGreen®-Boron	30							11% 150 g/l								ca. 8	1,36	Arable crops/Vegetables/Fruits/Grapes 1-3 l/ha	EU; FiBL D; AT
PhytoGreen®-Calciumborate	30				12% 173 g/l			7% 101 g/l								7,5	1,44	Arable crops/Vegetables/Fruits/Grapes 1-3 l/ha	

CARBO-ECO CaB	31				5,7% 65 g/l			0,3% 3 g/l								12	1,12	Arable crops/Vegetables/Fruits/Grapes 2-4 l/ha	EU;FiBL D:
PhytoGreen®-CalciumCarboxylate	31	8% 108 g/l			10%; 130 g/l											6	1,35	Arable crops/Vegetables/Fruits/Grapes 2-4 l/ha	
Phytosol®	31				19%; 286 g/l					0,007 %				0,2% 3 g/l		9,3	1,47	alle Kulturen 2-4 l/ha	EU;FiBL D
PhytoGreen®-Cu256	32								19,25 %							7-9	1,33	Cereal/Grapes 0,2 – 0,75 l/ha	EU;FiBL D;AT;
CARBO-ECO Cu	32								5% 58 g/l							1,3	1,16	Cereal/Vegetables/Grapes 2-3 l/ha	EU;FiBL D;AT;
PhytoGreen®-CopperCarboxylate	32								5% 57 g/l							2,4	1,14	Cereal/Vegetables/Grapes 2-3 l/ha	
CARBO-ECO Fe	33									5% 58 g/l						1,2	1,17	Arable crops/Fruits/Grapes/Ornamentals 3-5 l/ha	EU;FiBL D;AT;
PhytoGreen®-IronCarboxylate	33									5% 58 g/l						2,4	1,17	Arable crops/Fruits/Grapes/Ornamentals 3-5 l/ha	
CARBO-ECO K & K Carboxylate pH neutr	34			20% 264 g/l												7	1,32	Arable crops/Vegetables/Fruits/Grapes 2-4 l/ha	EU;FiBL D;AT;
PhytoGreen®-Potassium Carboxylate hig	34	3% 45 g/l		33% 502 g/l												12,9	1,52	Arable crops/Vegetables/Fruits/Grapes 3-5 l/ha	
PhytoGreen®-Manganese27	35										27% 500g/l					6	1,83	Arable crops/Vegetables/Fruits/Grapes/Ornamentals 1 l/ha	EU;FiBL D;AT
CARBO-ECO Mn	35										5% 58 g/l					1,8	1,16	Arable crops/Vegetables/Fruits/Grapes/Ornamentals 2-3 l/ha	EU;FiBL D;AT;
PhytoGreen®-ManganeseCarboxylate	35										5% 59 g/l					6,6	1,18	Arable crops/Vegetables/Fruits/Grapes/Ornamentals 2-3 l/ha	
PhytoGreen®-Manganese150	35										10,9% 150 g/l					3	1,37	Arable crops/Vegetables/Fruits/Grapes/Ornamentals 2-4 l/ha	
PhytoGreen®-MagnesiumCarboxylate	36	6% 80 g/l				5,4% 71,8g/l										6,4	1,3	Arable crops/Vegetables/Fruits/Grapes/Ornamentals 2-4 l/ha	
CARBO-ECO Mg	36					3% 35,6g/l	4% 48 g/l									1,5	1,19	Arable crops/Vegetables/Fruits/Grapes/Ornamentals2- 5 l/ha	EU;FiBL D;AT;
PhytoGreen®-Mg500	36					20% 301g/l										10	1,44	Arable crops/Vegetables/Fruits/Grapes/Ornamentals 2-4 l/ha	
PhytoGreen®-Molybdenum	37											15,6% 215 g/l				7-8	1,37	Arable crops/Vegetables 0,25 l/ha	EU;FiBL D;AT
PhytoGreen®-Sulphur800	38						56% 800g/l									8	1,42	all cultures 2-10 l/ha	EU;FiBL D;AT
PhytoGreen®-Zinc40	39												40% 700g/l			9	1,74	all cultures 0,5-2 l/ha	EU;FiBL D;AT
CARBO-ECO Zn	40												5% 58 g/l			1,5	1,17	all cultures 2-5 l/ha	EU;FiBL D;AT;
PhytoGreen®-ZincCarboxylate	40												5% 58 g/l			5,5	1,16	all cultures 2-5 l/ha	
Culture Specific Fertilizer for foliar application																			
PhytoGreen®-CerealMix	41	1,8% 28 g/l				7,7% 119g/l			1,5% 23 g/l		10,7% 166 g/l		4,5% 70 g/l			10	1,58	Cereal 1-2 l/ha	
PhytoGreen®-CerealMix Carbo	41	1,4% 17 g/l				1,2% 15g/l			1% 12 g/l		3% 38 g/l		2% 25 g/l			2,9	1,26	Cereal 2-4 l/ha	
PhytoGreen®-CornMix	42							5% 77 g/l			11% 170 g/l		6% 93 g/l				1,5	Corn 2-3 l/ha	EU
PhytoGreen®-CornMix Carbo	42							0,3% 4 g/l	1% 12 g/l		4% 50 g/l	0,1% 1,2 g/l	2% 25 g/l			2,7	1,24	Corn 4-6 l/ha	
PhytoGreen®-FruitColour	43		5% 67,5 g/l	20% 270 g/l												6,5	1,35	Fruits/Grapes: 2-3 l/ha	
PhytoGreen®-FruitCombi	44	10% 150 g/l			10,0% 150 g/l	1.1% 17 g/l			0.05% 0.7 g/l		0,5% 7.6 g/l		0.02% 0.3 g/l				1,5	Fruits/Grapes 3-9 l/ha	
PhytoGreen®-PotatoMix	45					2,6% 45g/l			5,8% 100 g/l		17,6% 300 g/l		3,5% 60 g/l			10	1,7	Kartoffeln: 2 l/ha	
PhytoGreen®-RapeseedMix	46						9,2% 142 g/l	4,1% 63 g/l			4,8% 74 g/l	0,5% 8 g/l					1,5	Rapeseed 2-3 l/ha	EU
PhytoGreen®-RapeseedMix Carbo	46					1,2% 13,3g/l	2,8% 32 g/l	0,5% 6 g/l			2% 22 g/l	0,13% 1 g/l				3,5	1,15	Rapeseed 5-7 l/ha	
PhytoGreen®-CitrusMix	47	4,7% 80 g/l						1,6% 20 g/l			4,6% 60 g/l	0,8% 10 g/l	5,5% 70 g/l			8	1,3	Zitruspflanzen 2,5-3,5 l/ha	
Culture Specific Fertilizer for seed treatment																			
PhytoGreen®-CerealStarter	40	2% 27g/l	0,1% 1,2 g/l	2,5% 32g/l			0,2% 2,5 g/l	0,2% 2,5g/l	0,6% 7g/l		4,4% 56g/l	0,1% 1,2g/l	1,6% 20g/l		x		1,2	200ml/100kg seeds	EU;FiBL D;AT
PhytoGreen®-CornStarter	40	1% 16g/l	0,1% 1,5g/l	2% 32g/l	1,6% 28 g/l	1% 16g/l	2% 32g/l	0,2% 3g/l	1,2% 20g/l		12% 200g/l	0,3% 5g/l	6% 100g/l		x		1,6	100ml/100kg seeds	EU;FiBL D;AT
PhytoGreen®-PotatoStarter	40	1% 15g/l	0,08% 1g/l	1% 15g/l		1% 13g/l	1,8% 23g/l	0,4% 5,5g/l	1,2% 17g/l		3% 40g/l	0,3% 4,7g/l	3% 40g/l		x		1,25	200ml/t potato shoots	EU;FiBL D;AT
PhytoGreen®-LegumeStarter	40	1,5% 20g/l	0,1% 1g/l	2,3% 30g/l	0,3% 4g/l	0,2% 2g/l	0,7% 9g/l	1,5% 20g/l	0,5% 7g/l	3,1% 40g/l	4% 52g/l	0,1% 0,8g/l	3,1% 40g/l		x		1,3	200ml/100kg seeds	EU;FiBL D;AT

EU: In compliance with Council Regulation (EC) No 2018/848 on organic production; FiBL D: Listed as input for organic productionin Germany;

AT (Austria): This product was evaluated by EASY-CERT services based on Regulation (EU) No. 2018/848 and may be used in organic production.

Plantosol®/ Bio-Plantosol®

ORGANIC NITROGEN FERTILISER, LIQUID

Composition:

Plantosol®: 9 % organic bound nitrogen (108 g N/l)
enzymatic hydrolysed collagen

Bio-Plantosol®: 6,5 % organic bound nitrogen (78 g N/l);
enzymatic hydrolysed organic plant material

Mode of action and advantages:

- Nitrogen in form of amino acids = directly available N via leaves
- Supports plant growth especially during stress situations
- Stimulate cell division and root formation

Recommendations for use and application rates:

General for all cultures:	Reduction of stress in case of dryness, waterlogging, hail etc.: 2-3 l/ha as foliar application. Growth stimulation: 2-6 l/ha as soil application.
Strawberries, vegetables, tobacco, tree nursery:	For root formation and before new planting: Plunge the plant into a 1% solution or, to take root, water it with 5-10 l/ha 7-10 days after planting.
Pip fruit:	Foliar application. Before blooming period: 2 applications with 5-7.5 l/ha. To reduce fruit russeting and against fruit falling before harvest: apply 5-7.5 l/ha from the beginning of August 5-6 times.
Stone fruit:	Foliar application. For healthy growth as of blooming period: 3 times 5-7.5 l/ha at an interval of 8 days. To prevent symptoms caused by sharka as of blooming period: 3 times 5-7.5 l/ha at an interval of 30 days.
Vine:	To achieve uniform ripeness: 4 foliar applications with 3-5l/ha (0,5-1%).
Ornamental plants:	For leaf quality and growth: 4 times 100-300 ml per 100 l water as foliar application.
Mediterranean plants, citrus:	Foliar applications with 0,5-1%.
Arable crops:	1-2 l/ha as foliar application, especially during unfavourable weather conditions.

Technical details:

Plantosol®: Density: 1,2 kg/l; pH = 5,5
Bio-Plantosol®: Density: 1,2 kg/l; pH = 6-7

Miscibility: Plantosol® / Bio-Plantosol® can be mixed with usual plant protection products and foliar fertilisers.

In compliance with Council Regulation (EC) No 2018/848 on organic farming. Listed at FiBL Inputs list for the organic agriculture in Germany (Plantosol / Bio-Plantosol) and in Austria (Plantosol-T / Plantosol-P).

Pack sizes:
1 ltr. · 10 ltr. · 200 ltr. · 1000 ltr.

PHYTO solution
... Plant nutrition with system

Plantosol®-N65

plant derived amino acid (Glycin-Betaine) without sugar-beet vinasse and free of Clopyralide

Composition:

56% plant derived amino acid (Glycin-Betaine) equivalent to 6,5% nitrogen

Mode of action and advantages:

- provides organic nitrogen
- absorbed directly via leaves and roots
- supports plant growth especially in stressful situations
- enhances natural resistance upon extreme climate conditions
- ensures high quality yield products
- pure plant derived - vegan.

Plantosol®-N65 (6,5% N equivalent to approximately 73 g N/l with a density of 1,12) is produced out of plant derived raw materials.

The amino acid glycine betaine contained in Plantosol®-Bio N 6.5 can be found in many plants and is excellently absorbed directly via the leaves or roots. The plant thus "saves" the energy-intensive synthesis and plant growth is supported, especially in stressful situations. Glycine betaine plays an important role in plant physiology in leaf and root development as well as in resistance to drought, heat, cold, salinity or UV radiation.

Plantosol®-N65 can be used directly, flows well and is pumpable. In the hobby sector it is suitable for foliar spraying or watering applications. In the professional sector, Plantosol®-N65 can easily be used in the ebb and flow process as well as in drip irrigation, as no components settle.

Recommendations for use and application rates:

Watering via the soil: 0,8 to 1,5%.
Foliar application: 0,5%. Duration of exposure: at least 2 hours before irrigation or rainfall.
Dosage in drip or sub-irrigation: 0.1-0.25% for all cultures.
Repeat the application according to the nutriet demands of the culture - usually every 10 days at the beginning of the culture, every 3 days in the main growth phase.

Plantosol®-N65 does not contain conservatives nor Clopyralide. All batches are surveyed by an external certified lab.

In compliance with Council Regulation (EC) No 2018/848 on organic production.

Miscibility: Plantosol® can be mixed with usual plant protection products and foliar fertilisers.

Pack sizes:
1 ltr. · 10 ltr. · 200 ltr. · 1000 ltr.

PHYTO solution
... Plant nutrition with system

PhytoGreen®-Booster/Bio-Booster

ORGANIC NITROGEN FERTILISER, LIQUID

Composition:

PhytoGreen®-Booster: 8% organic nitrogen (96 g N/l); with seaweed extract, humic and fulvic acids and more than 15% free amino acids

PhytoGreen®-BioBooster: 3,5% organic nitrogen (39 g N/l); vegetable enzymatic hydrolysed protein; with seaweed extract, humic acids and more than 17% free amino acids

Mode of action and advantages:

- Combination of amino acids and seaweed for quick regeneration and growth
- High vitality and health boost for all plants- especially under unfavorable growth conditions
- Guarantee high crop quality
- For foliar application or in fertigation

Recommendations for use and application rates:

Vine:	For the light building of bunches of grapes, uniform ripeness and high must quality. Foliar application before bloom: 2 times 0.3-0.5 l/ha at an interval of 8-10 days; after bloom (when blossom caps have been completely dropped): 0.5 l/ha. Fertigation via the soil: in new and older plants, after the start of vegetation period use 3 l/ha, to be repeated 2-3 times at intervals of 10-14 days.
Pip fruit:	Foliar application: before blooming period 2-3 applications with 0.4-0.5 l/ha; from first fruit appearing until fruit growth 2-3 times 3 l/ha.
Ornamental plants and tree nursery:	Foliar application: after bedding out 0.3-0.5 l/ha. Fertigation: after bedding out 0.3 l/1000m².
Strawberries, vegetables:	For root formation and before new planting: Plunge the plant into a 1% solution. Foliar application: 7-10 days after planting to start growth apply 0.3 l/ha; before and after bloom apply 0.5 l/ha. Fertigation: After planting 3 l/ha; during bloom 3 l/ha, during fruit growth 2-3 times 3 l/ha.
Stone fruit:	Foliar application: for healthy growth as of blooming period: 3 times 0.4-0.5 l/ha at an interval of 8 days. Against symptoms caused by sharka as of blooming period: 3 times 0.5-1.0 l/ha at an interval of 20 days.

Technical details:

PhytoGreen®-Booster: Density: 1,2 kg/l; pH = 5
PhytoGreen®-BioBooster: Density: 1,1 kg/l; pH = 5

Miscibility:
PhytoGreen®-Booster/ BioBooster can be mixed with usual plant protection products and foliar fertilisers.

Pack sizes:
1 ltr. · 5 ltr. · 200 ltr.

PhytoGreen®-BioBooster is in compliance with Council Regulation (EC) No 2018/848 on organic farming. Listed at FiBL Inputs list for the organic agriculture in Germany.

PHYTO solution ... Plant nutrition with system

PhytoGreen®-Urea liquid 40

NITROGEN FERTILISER LIQUID

Composition:

40% Urea containing 18% N as Carbamide nitrogen (= 198 g N/l)

Mode of action and advantages:

- Highly plant compatible special formulation out of Carbamide
- Very effective supplement to soil fertilisation
- Allows N-uptake under dry or other stress situations
- Covers periods of high N-demand and preserves fertiliser balance

Recommendations for use and application rates:

PhytoGreen®-Urea liquid 40 can be applied to all crops as a foliar spray to effectively supplement the nitrogen supply from the soil. Even when there is a drought or any other stressful situation, the nitrogen is absorbed directly by the leaves. Under favorable conditions, the plant has already absorbed 85% of the urea after 24 hours (www.hortipendium.de/Blattdüngung).

Application rate: 10 - 50 l/ha (depending on the crop‘s nitrogen requirements) or 10 l/ha in addition to each plant protection application.

The product contains around 200 g N/l, resulting in the following amounts of nitrogen (to be taken into account in the fertilizer balance):

Application rate l/ha	10	20	30	40	50
contained kg N/ha	2	4	6	8	10

Hint: Content of Biuret < 0,5%. Biuret is an unwanted by-product of the production of urea and can cause chlorosis in plants. A maximum content of 1.2% is therefore stipulated in the fertilizer regulations.

Technical details:

Density: 1,1 kg/l

Miscibility: PhytoGreen®-Urea liquid 40 can be mixed with usual plant protection products and foliar fertilisers.

Pack sizes:
1 ltr. · 10 ltr. · 200 ltr. · 1000 ltr.

PhytoGreen®-NPK Standard Formulations

NPK FERTILISER LIQUIDS with trace elements

Mode of action and advantages:

- NPK fertiliser with trace elements
- The well balanced nutrient supply for plants
- For healthy growth and optimized photosynthesis
- Well-tolerated

Composition (all nutrients in water soluble form; Fe, Cu, Mn and Zn as chelates of EDTA):

	PhytoGreen®-NPK 12-4-6	PhytoGreen®-NPK 8-8-6	PhytoGreen®-NPK 5-20-5	PhytoGreen®-NPK 7-21-7
Nitrogen (N)	12% (145 g/l)	8% (97 g/l N total: 2,4% ammonium-N; 1,8% nitrate-N; 3,8% carbamide N)	5% (65 g/l carbamide-N)	7% (93 g/l N total: 14,5 g/l nitrate-N, 78,5 g/l carbamide-N)
Phosphate (P_2O_5)	4% (48 g/l)	8% (97 g/l)	20% (260 g/l)	21% (279 g/l)
Potassium (K_2O)	6% (73 g/l)	6% (73 g/l)	5% (65 g/l)	7% (93 g/l)
Boron (B)	0,01%	0,01%		0,02%
Iron (Fe)	0,02%			0,05%
Copper (Cu)	0,002%	0,005%		
Manganese (Mn)	0,01%	0,01%		0,05%
Molybdenum (Mo)	0,001%			
Zinc (Zn)	0,002%	0,01%		
Density	1,2	1,2	1,3	1,33
pH	5	5	1,2	1,1

Recommendations for use and application rates:

General:	Via the soil: 0,3-0,5%ig, as foliar application 0,5-1%ig from beginning of vegetation, reapply according to requirements of the culture.
Berries:	As oliar application: 0,5-1% at beginning of vegetation, potentially reapply. Do not apply during blooming period.
Pip fruit:	As a foliar application: 0,5-1% from the beginning of vegetation up, potentially reapply. Do not apply during blooming period. In rusting sensitive varieties do not apply during periods critical for rust development.
Stone fruit:	As foliar application: 0,5-1% from the beginning of vegetation up, potentially reapply (not during blooming period).
Vegetables:	For initial development: 2-4 foliar applications from 2-leaf-stage up with 0,2-0,4%. For nutrient supply and output: 2-4 applications with 5-8 l/ha during main growth period. Under glass: several foliar and soil applications with 0,3-0,5%.
Arable crops:	To stabilize the culture, as alternative to adhesives in mixtures: 2-3 l/ha for foliar application.
Cereals:	1-2 foliar applications with 4-8 l/ha from beginning of vegetation.
Sugar beet:	1-2 foliar applications with 4-6 l/ha from from 5-leaf-stage until meeting across the rows.
Ornamentals, mediterranean plants, citrus:	Foliar applications with 0,2-0,4%ig according to requirements of the culture.

Miscibility: PhytoGreen®-NPK standard formulations can be mixed with usual plant protection products and foliar fertilisers.

Pack sizes:
1 ltr. · 10 ltr. · 200 ltr. · 1000 ltr.

PHYTO solution
... Plant nutrition with system

PhytoGreen®-NPK Plus

NPK FERTILISER LIQUID 12-8-4 with magnesium and trace elements

Composition:

12.0% w/v N (120 g/l nitrogen), **8.0% w/v P_2O_5** (80 g/l water soluble phosporus), **4.0% w/v K_2O** (40 g/l water soluble potassium), **2.4% w/v MgO** (water soluble magnesium), **0.04% w/v B** (water soluble boron), **0.008% w/v Cu** (water soluble copper), **0.007% w/v Fe** (water soluble iron), **0.228% w/v Mn** (water soluble manganese), **0.0005% w/v Mo** (water soluble molybdenum), **0.009% w/v Zn** (water soluble zinc)

Mode of action and advantages:

- A unique NPK formulation blended with Magnesium and trace elements
- Well suitable for nutrient supply in vinegrowing
- For quick nutrient delivery during periods of high growth
- Excellent uptake of trace elements due to the contained organic acids

Recommendations for use and application rates:

PhytoGreen®-NPK Plus is suitable for use in a wide range of crops providing a source of rapidly absorbed nutrients during periods of rapid growth and development or at times of crop stress. PhytoGreen®-NPK Plus is formulated with its own adjuvant system for improved tank-mixing compatibility, uptake and translocation of the metal ions within the plant.

Application rate: Use 2 l/ha in 200 litres of water. Repeat every 7-14 days as necessary.

Timing: Apply as and when required to provide the plant with additional nutrients in adverse growing conditions, when the crop is under stress and on crops with high yield/quality potential.

Technical details:

Density: 1,2 kg/l
pH = 2,2

Miscibility: PhytoGreen®-NPK Plus can be mixed with usual plant protection products and foliar fertilisers.

Pack sizes:
10 ltr. · 200 ltr. · 1000 ltr.

PhytoGreen®-NP-Liquid 7-18

NP FERTILISER SOLUTION 7-18

Composition:

7 % N total nitrogen (84 g/l as ammonium-N)
18 % P_2O_5 water soluble phosporus (216 g/l)

Mode of action and advantages:

- Nutrient solution with nitrogen and phosphate
- Easy handling
- Well suitable for Cultan Method and soil injection

Product details:

Appearance:
Clear, brownish liquid of urea and diammoniumphosphate (DAP) in water.

Further information:
No hazardous good (guideline 67/548/EWG).

Storage:
0 °C - 80 °C

Technical details:

Density: ca. 1,2 t/m^3
pH: 8
Filtration residue: max. 0,01%

Pack sizes:
1000 l. More pack sizes upon request.

PHYTO solution
... Plant nutrition with system

PhytoGreen®-PK Plus

PK FERTILISER LIQUID 11-7 with magnesium and manganese

Composition:

11% P_2O_5	(132 g/l water soluble phosporus)
7% K_2O	(84 g/l water soluble potassium)
1% MgO	(12 g/l water soluble magnesium oxide)
0,8% Mn	(9,6 g/l water soluble manganese)

Mode of action and advantages:

- PK fertiliser with magnesium and manganes for direct nutrient supply.
- Contained carboxylic acids lead to a quick uptake and transport of nutrients.
- Promotes growth especially at the beginning of the vegetation period.

Recommendations for use and application rates:

PhytoGreen®-PK Plus has to be brought out as a foliar application with 0,5% (500 ml PhytoGreen®-PK Plus/ 100 l water) as soon as enough leaves are available. Adapt water amount to a throughout coverage of the full leave area. Especially at the beginning of the vegetation period, PhytoGreen®-PK Plus enhances root development very effectively. Repeat treatment due to nutrient demands of the culture. In general, 1-2 applications are recommended.

PhytoGreen®-PK Plus can be applied in all spray droplet sizes. The treatment is recommended for the early morning, the late evening or on cloudy days. Apply on dry leaves and at least two hours before irrigation or rain.

Technical details:

Density: 1,2 kg/l
pH = 2,7

Miscibility: PhytoGreen®-PK Plus can be mixed with usual plant protection products and foliar fertilisers.

Pack sizes:
10 ltr. · 200 ltr. · 1000 ltr.

PhytoGreen®-HiPhos

PK FERTILISER SOLUTION with Magnesium 31-5 (5,6)

Composition:

30,6 % P_2O_5 (440 g/l water soluble phosphate)
5,1 % K_2O (74 g/l water soluble potassium oxide)
5,6 % MgO (80 g/l water soluble magnesium oxide)

Mode of action and advantages:

- Water soluble phosphate for foliar application - directly available to plants.
- With magnesium and manganes for arable crops.
- For quick nutrient supply in times of high demand.

Recommendations for use and application rates:

General:	PhytoGreen®-HiPhos has to be applied as foliar fertiliser in at least 200 l Water/ha.
Potatoes:	To encourage tuber numbers, apply 10 l/ha in at least 200 litres of water at tuber initiation. To encourage bulking, apply 5 l/ha in at least 200 litres of water at the onset of bulking and repeat at least once during bulking. The timing of the 2nd application should be based on tissue analysis and should not be less than 10 days after the 1st.
Cereals:	Apply 5 l/ha in at least 200 litres of water at tillering and repeat at 10 - 14 day intervals as required. An application between ear emergence and the end of flowering may also be beneficial.
Oilseed rape:	Apply 2.5 - 5.0 l/ha in at least 200 litres of water. Apply in the autumn when the crop has 6 - 8 leaves and repeat in the spring at early stem extension.
Peas and beans:	Apply 5 l/ha in at least 200 litres of water when the crop is 10 - 15 cm high and repeat after 10 - 14 days.
Sugar beet:	Apply 5 l/ha in at least 200 litres of water at the 4 - 6 leaf stage. Repeat at 10 - 14 day
Corn:	Apply 2.5 - 5.0 l/ha in at least 200 litres of water at the 4 - 8 leaf stage. Repeat at 10 - 14 day intervals if required.

Corn with P-deficiency (purple leaves)

Technical details:

Density: 1,44 kg/l
pH = 2

Miscibility: Do not mix with the fungicide Corbel, with fertilisers containing boron or with alkaline products.

Pack sizes:
10 ltr. · 200 ltr. · 1000 ltr.

PHYTO solution
... Plant nutrition with system

PhytoGreen®-NPK Complete

NPK FERTILISER 20-8-14 with Magnesium, Sulphur and trace elements

Composition:

20,0 % N total nitrogen (0.88% as nitrate, 6.23% as ammonium and 12.9% as carbamide), **8,0 % P_2O_5** (water soluble phosphorus), **14,0 % K_2O** (water soluble potassium oxide), **9,7 % S** (water soluble sulphur), **2,0 % MgO** (water soluble magnesium oxide), **0,26 % Manganese*, 0,20% copper*, 0,14 % zinc*, 0,04% boron, 0,02% iron*, 0,006% molybdenum.** All nutrients water soluble, * as chelate of EDTA.

Mode of action and advantages:

- Fully water soluble granules with all important nutrients for foliar application.
- May be used as a routine nutrient source for maintaining healthy crop growth.
- Rapidly absorbed - provides additional nutrients at a time of crop stress or during periods of particularly rapid growth and development.

Recommendations for use and application rates:

Rates of use:

PhytoGreen®-NPK Complete is used for foliar application or in drip irrigation.
Foliar application: 2.5 – 5.0 kg PhytoGreen®-NPK Complete/ha in at least 200 l/ha water.
Fertigation: 0.5 - 2 °/₀₀ (50 - 200 g/100 l water)

Timing:

Apply PhytoGreen®-NPK Complete when required or as indicated by the results of tissue analysis, once the crop has sufficient leaf area present to absorb the spray (e.g. the 3-leaf stage in cereals). Repeat at 7-14 day intervals as required.

Technical details:

Miscibility: PhytoGreen®-NPK Complete can be mixed with usual plant protection products and foliar fertilisers.

Pack sizes:
1 kg • 10 kg • 25 kg

PhytoGreen®-Bio N(P)K´s based on sugar beet vinasse

ORGANIC MINERAL N(P)K-FERTILISER LIQUIDS with trace elements

Mode of action and advantages:

- Provide natural nutrients.
- Raw materials: sugar beet vinasse, enzymatic hydrolysed animal proteins (7-2-2 and 8-3-4 only), stone dust, certified micronutrient fertilisers, seaweed.
- Direct uptake supports growth, fruit development and yield.
- Available in various compositions.

Composition:

	PhytoGreen®-Bio-NK 4-6	PhytoGreen®-Bio-NPK 2-5-8	PhytoGreen®-Bio-NPK 3-3-3	PhytoGreen®- Bio-NPK 4-1-5	PhytoGreen®-Bio-NPK 8-3-4
Nitrogen (N)	4% (52 g/l)*	2% (33 g/l)*	3% (39 g/l)*	4% (50 g/l)*	5,9% (80 g/l)**
Phosphate (P_2O_5)	0,2% (2,6 g/l)	5% (67 g/l)	3% (39 g/l)	1% (13 g/l)	2,3% (30 g/l)
Potassium (K_2O)	6% (78 g/l)	8% (112 g/l)	3% (39 g/l)	5% (64 g/l)	3% (40 g/l)
Calcium (Ca)	0,2% (2,6 g/l)	5% (80 g/l)	5% (65 g/l)	1,5% (20 g/l)	3% (40 g/l)
Magnesium (Mg)	0,05% (0,7 g/l)	0,1% (1,5 g/l)	0,1% (1,3 g/l)	0,3% (3,9 g/l)	0,1% (1,4 g/l)
Sulphur (S)	0,8% (10 g/l)	2% (30 g/l)	1% (13 g/l)	1% (13 g/l)	0,6% (8,4 g/l)
Boron (B)	15 mg/l		110 mg/l	5 mg/l	
Iron (Fe)	10 mg/l	0,1% (1,5 g/l)	0,2% (2,6 g/l)	0,1% (1,3 g/l)	0,1% (1,4 g/l)
Copper (Cu)	100 mg/l	0,1% (1,5 g/l)	0,1% (1,3 g/l)		0,1% (1,4 g/l)
Manganese (Mn)	70 mg/l	0,1% (1,5 g/l)	0,2% (2,6 g/l)	0,1% (1,3 g/l)	0,1% (1,4 g/l)
Zinc (Zn)	20 mg/l	0,1% (1,5 g/l)	0,2% (2,6 g/l)	0,1% (1,3 g/l)	0,1% (1,4 g/l)
Seaweed	no	yes	yes	yes	yes
organic substance	45%	22%	20%	42%	46%
organic carbon	26%	13%	12%	25%	27%

* N out of sugar beet vinasse; ** N out of sugar beet vinasse + enzymatic hydrolysed animal proteins

Recommendations for use and application rates:

General:	Vinasse can be used for soil application in any culture. When using conventional irrigation technology, the concentration should not exceed 5 %. As direct soil application in orchards and viticulture the product can also be applied in higher concentration. PhytoGreen®-Bio NPK`s can also be used for foliar appication but may cause spraying stains. Application rate 0,4-1,5%. Dosage in drip or sub-irrigation: 0,1-0,25% every 3-10 days (every 10 days at the beginning of the culture, every 3 days in the main growth phase).
Pip fruit:	Fertigation: max. 5%. Foliar application: 0.5-1% from the beginning of vegetation up, potentially reapply. In rusting sensitive varieties do not apply during periods critical for rust development.
Stone fruit and berries:	Fertigation: max. 5%. Foliar application: 0.5-1% from the beginning of vegetation up, potentially reapply.
Vine:	Fertigation: max. 5%. Foliar application: 0.5-1% from the beginning of vegetation up, potentially reapply.
Vegetables:	Fertigation: max. 5%. Foliar application: for initial development: 2-4 applications from 2-leaf-stage up with 0.2-0.4%. For nutrient supply and output: 2-4 applications with 5-8 l/ha during main growth period.
Cereals:	1-2 foliar applications with 4-8 l/ha from beginning of vegetation up.
Zuckerrüben:	1-2 foliar applications with 4-6 l/ha from 5-6-leaf-stage until meeting across the rows.
Maize:	1-2 foliar applications with 4-6 l/ha.
Ornamentals, mediterranean plants, citrus:	As foliar or soil application with 0,4-0,8%, reapply according to the demands of the culture.

Pack sizes:
1 l • 10 l • 200 l • 1000 l

In compliance with Council Regulation (EC) No 2018/848 on organic farming. Listed at FiBL Inputs list for the organic production in Germany.

PHYTO solution
... Plant nutrition with system

PhytoGreen®-Bio NPK´s without sugar beet vinasse purely vegetable

ORGANIC NPK-FERTILISER LIQUIDS

Mode of action and advantages:

- Vegetable raw materials from the food industry (fermented and enzymatically hydrolysed).
- High quality end products containing water soluble nutrients including phosphor.
- Free of residues.

Composition:

	PhytoGreen®-Bio-N 6,5	PhytoGreen®-Bio-NPK 2-1-10	PhytoGreen®-Bio-NPK 3-4-3	PhytoGreen®-Bio-NPK 5-2-5	PhytoGreen®-Bio-NPK 6-2-2	PhytoGreen®-Bio-NPK 7-2-2	PhytoGreen®-Bio-NPK 8-3-2
Nitrogen (N)	6,5% **(73 g/l)**	2% **(25 g/l)**	2,5% **(30 g/l)**	4,1% **(50 g/l)**	5,0% **(60 g/l)**	5,8% **(70 g/l)**	6,3% **(80 g/l)**
Phosphate (P_2O_5)		1% **(12 g/l)**	3,3% **(40 g/l)**	1,6% **(20 g/l)**	1,8% **(20 g/l)**	1,7% **(20 g/l)**	2,4% **(30 g/l)**
Potassium (K_2O)		10% **(125 g/l)**	2,5% **(30 g/l)**	4,1% **(50 g/l)**	1,8% **(20 g/l)**	1,7% **(20 g/l)**	1,6% **(20 g/l)**
Calcium (Ca)		0,14% (1,7 g/l)	0,05% (0,6 g/l)	0,1% (1,3 g/l)	0,1% (1,3 g/l)	0,05% (0,6g/l)	0,1% (1,3 g/l)
Magnesium (Mg)		0,3% (3,7 g/l)	1,0% (12 g/l)	0,1% (1,3 g/l)	0,1% (1,3 g/l)	0,3% (3,2 g/l)	0,2% (2,6 g/l)
Sulphur (S)		0,6% (7,4 g/l)	0,3% (3,6 g/l)	0,6% (7 g/l)	0,6% (7 g/l)	1,0% (12 g/l)	1,0% (13 g/l)
Boron (B)		ca. 5 mg/l	10 mg/l	6 mg/l	5 mg/l	6 mg/l	10 mg/l
Iron (Fe)		ca. 30 mg/l	70 mg/l	40 mg/l	40 mg/l	30 mg/l	60 mg/l
Copper (Cu)		ca. 4 mg/l	4 mg/l	4 mg/l	5 mg/l	2 mg/l	5 mg/l
Manganese (Mn)		ca. 10 mg/l	20 mg/l	16 mg/l	20 mg/l	12 mg/l	20 mg/l
Zinc (Zn)		ca. 20 mg/l	70 mg/l	30 mg/l	30 mg/l	24 mg/l	50 mg/l
organic substance	52%	22%	26%	36%	37%	50%	54%
organic carbon	28%	13%	15%	21%	22%	26%	28%

Individual compositions are possible also (minimum order amount 1000 l).

Recommendations for use:

Application via the soil: 0,8 to 1,5%.
Dosage in drip or sub-irrigation: 0,1-0,25%-ig.
Application via the leaf: 0,5-1,0%ig.

Repeat the application according to the nutrient demands of the culture - usually every 10 days at the beginning of the culture, every 3 days in the main growth phase.

PhytoGreen®-Bio-NPK`s without vinasse are the innovation and ecological as well as economical answer to the current challenges and questions in cultivation of vegetables, herbs and ornamentals.

Pot trial in basil 2018: Basil in 0,5l-pots with 2 different substrates was drip-irrigated (3 l/h; 2 bar) with in total 600 ml water/ water + PhytoGreen®-Bio-NPK 8-3-1 (formulation 2020) per pot without rinsing of pipes afterwards. Fertilizer amount: 1,4 g/l with the first two irrigations and 4,2 g/l with the following seven irrigations - sum: 168 mg N, 63 mg P und 21 mg K per pot.
Result: PhytoGreen®-Bio-NPK 8-3-1 increased above ground biomass on both substrates by 250%. The regular addition of PhytoGreen®-Bio-NPK 8-3-1 did not cause any clogging in the drip irrigation system, had no appreciable effect on the pH of the soil and only led to a small increase in the EC value.

Pack sizes:
1 l • 10 l • 200 l • 1000 l

In compliance with Council Regulation (EC) No 2018/848 on organic farming. Listed at FiBL Inputs list for the organic porduction in Germany.

PhytoGreen®-NPK BioPearls

ORGANIC NPK-FERTILISER GRANULES

Composition: 11% N, 0,3% P_2O_5, 4% K_2O

Mode of action and advantages:

- raw material: fermented fermented sugar cane
- NK-basic fertiliser with low P_2O_5
- contains traces of all other essential plant nutrients
- promotes soil life, supports high yield and plant quality

The granules are converted over a period of several weeks. About 50% of the nitrogen is released within the first 2-4 weeks, the rest within 10-12 weeks of use.

The application rate depends on the N requirements of the cultures (100 kg PhytoGreen®-NPK BioPearls 11-0,3-4 contain 11 kg N). In general, 50 - 450 kg / ha can be spread with the fertilizer spreader (5-45 g / m^2).

Dosage when mixed into substrates: 1.5 - 3 kg / m^3

Dosage for pot cultures: 30 g / 10 l pot volume

Detailed composition:

Nutrients (average analysis result)	
N total	11,0 %
P_2O_5	0,3 %
K_2O	4,0 %
Ca	1,3 %
Cl	2,0 %
Mg	0,3 %
Na	2,6 %
S	1,0 %
B	7 mg/kg
Cu	5 mg/kg
Fe	541 mg/kg
Mn	63 mg/kg
Mo	1 mg/kg
Si	421 mg/kg
Zn	20 mg/kg

Packaging: 25 kg/ 900 kg

Storage and durability: If stored dry, frost-free and protected from direct sunlight, the product can be kept for at least 3 years.

Notes on application with machinery:
Particle size: 3 - 4 mm (90%), Minimum 2 mm
Bulk density: 0,75 - 0,85 kg/l

In compliance with Council Regulation (EC) No 2018/848 on organic farming. Listed at FiBL Inputs list for the organic production in Germany.

Seaweed

BIOSTIMULATOR

Composition:

PhytoGreen®-Algae extract: Extract of brown alga (Ascophyllum nodosum)
PhytoGreen®-Algae juice: Juice of brown alga (Ascophyllum nodosum)

Mode of action and advantages:

- Contain natural nutrients such as N, P, K, Mg, Na, B, Cu, Fe, Mn, Mo, Zn, carbohydrates, fatty acids, amino acids, vitamins A, B1, B2, 83, B6, B12, C, D3, E and K, phytohormones and auxins at a quantity which is well balanced for plants.
- Stimulate growth and root development.
- Increase quality and storage stability of crops.

Recommendations for use and application rates:

General:	To generally strengthen, to support metabolic processes, to reinforce resistance and resistibility: 2-5 l/ha every 14-30 days as foliar application.
Vine:	To achieve uniform ripeness and must quality: 2-3 l/ha after sprouting until the grapes have reached their full size every 14 days.
Pip fruit:	Leaf development, fruit setting, yield, development of fruit buds: 5-7.5 l/ha during full flowering, finish flowering, post flowering and at hazelnut size. To achieve a plain shell, against greasiness: 2 foliar applications with 2-3 l/ha as of hazelnut size.
Stone fruit:	Several foliar applications with 2-3 l/ha from fruit setting until harvest every 14 days.
Strawberries:	Several foliar applications with 2-3 l/ha from blooming period until harvest
Fruiting vegetable, root and tuber crops, brassica, green and bulb vegetables:	Several foliar applications with 2-3 l/ha from emerging and/or planting every 14 days.
Potatoes:	Several foliar applications with 2-3 l/ha from emerging every 14 days.
Ornamental plants:	Leaf quality and growth: 200-300 ml per 100 l water every 14 days.
Arable crops:	2-4 l/ha as foliar application from emerging every 14 days.

Technical details:

PhytoGreen®-Algae extract: Density: 1,1 kg/l; pH = 6
PhytoGreen®-Algae juice: Density: 1,1 kg/l; pH ca. 5

Miscibility: The products can be mixed with usual plant protection products and foliar fertilisers.

Pack sizes:
1 l • 10 l • 200 l • 1000 l

PhytoGreen®-Algae juice is in compliance with Council Regulation (EC) No 2018/848 on organic farming. Listed at FiBL Inputs list for the organic production in Germany.

PhytoGreen®-BetaBoost

Organic-mineral NK-Fertiliser LIQUID 1,5-6

Composition:

Plant derived amino acids, 10% betaine-glycine, seaweed extracts, 6% K2O

Mode of action and advantages:

Vegan amino acids, betaine, seaweed extracts PLUS potassium - the optimal combination against drought and heat stress

Recommendations for use and application rates:

Vine: Two applications with 0.3-0.5 l/ha before flowering. In the event of heat or cold stress, 0.5 l/ha several times as a preventive measure. To improve the effectiveness of pesticides 0.5 l/ha.
Arable crops: one or two applications with 0,5-1 l/ha in all culturesIn the event of heat or cold stress. Reapply after 7-14 days.

Plant derived amino acids out of wheat & betaine-glycine

- Organic nitrogen out of wheat to be uptaken immediately
- Betaine-glycine as biostimulator
- Supports plant growth especially in stress situations
- Raises tolerance to heat or low temperatures

Stress-tolerance

Vitality & yield

Seaweed extracts

- Stimulate blooming & fruit setting
- Support plant health
- Complete PhytoGreen®-BetaBoost to an allrounder
- Contain valuable vital substances like vitamins, auxins, phytohor-mons

Potassium

- Raises tolerance to drought
- Increases water use efficiency
- Potassium bound on carboxylic acids guarantees an effective uptake and use within the plant metabolism

Water use efficiency

Technical details:

Density: 1,1- 1,2 kg/l; pH 7-8

Miscibility: The products can be mixed with usual plant protection products and foliar fertilisers.

Pack sizes:
1 l • 10 l • 200 l • 1000 l

PHYTO solution
... Plant nutrition with system

BlackHum/PhytoGreen®-Fulvo

BIOSTIMULATOR (PLANT RESISTANCE IMPROVER LSN 007928-00/00)
NPK FERTILIZER LIQUID WITH FULVIC ACIDS

Composition:

BlackHum: **20% humic and fulvic acids, both for soil and foliar application**
PhytoGreen®-Fulvo: **29% Fulvic acids,** 1,5% N (total nitrogen); 3% P_2O_5 (water soluble phosphorus pentoxide);, 3% K_2O (water-soluble potassium)

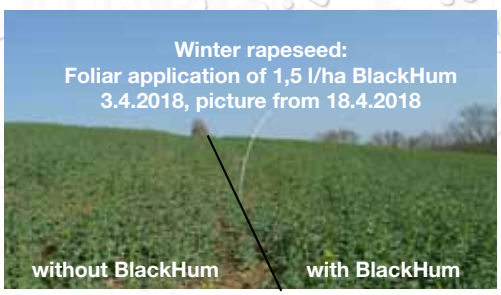
Mode of action and advantages:

- Supports resistance and resistibility.
- Enforces the epidermis of the leaves, supports root formation, improves the vitality and preserves the health of economic plants.
- Lowers the soil fatigue.
- Accelerates the uptake of nutrients, stimulates the generation of plant-own enzymes.

Recommendations for use and application rates:

General:	For the general invigouration, improvement of nutrient uptake, promotion of microorganisms and metabolism, stimulation of root formation, enforcement of resistance and resisitibility: apply 20-30 l/ha and year via the soil or several times 250 ml BlackHum/PhytoGreen®-Fulvo per100 l water via the leaves. **Root treatment of seedlings** (conifers, vine, strawberries etc.): before planting dip roots into a 0,25% solution (25 ml BlackHum in 10 l water).
Strawberries, vegetables, tobacco, tree nursery:	For general invigoration, promotion of metabolism, strengthening of resistance and resistibility: apply 1 l BlackHum/PhytoGreen®-Fulvo per ha with 400-1000 l water as off pre-blossom and repeat 2-3 times according requirements until fruit coloring.
Fruiting vegetable, root and tuber crops, brassica, green and bulb vegetables:	For general plant vitality, good start of growth and quality: several foliar applications at intervals of 8-10 days using 1 l BlackHum/PhytoGreen®-Fulvo as of beginning of vegetation.
Potatoes:	For general plant vitality: several foliar applications with 2 l BlackHum/PhytoGreen®-Fulvo per ha as of crop meeting across the rows, to be repeated after about 14 days.
Pomaceous and stone fruit:	For general plant vitality: several foliar applications before blossom with 1 l BlackHum/PhytoGreen®-Fulvo per ha. By a stimulation of the plant-own resistance the onset of mildew and rot of fruits may be reduced.
Maize:	To minimize herbicidal stress, to improve rooting and growth: several foliar applications using 1-2 l/ha.
Vine:	To improve the uptake of iron: several foliar applications with 1 l BlackHum/PhytoGreen®-Fulvo per ha as off 5-leaves-stage until grapes have reached their full size.
Oilseed rape:	Regeneration after frost, quicker development in spring: foliar application with 1,5 /ha in spring
Sugar beet:	To improve the generation of sugar, to stabilise the output, to stimulate the synthesis of invertase, and to improve the regulation of cell water: several foliar applications using 2 l BlackHum/PhytoGreen®-Fulvo per ha as of crop meeting across the rows, to be repeated after about 14 days.

In compliance with Council Regulation (EC) No 2018/848 on organic farming. Listed at FiBL Inputs list for the organic production in Germany.



Technical details:

BlackHum: Dichte: 1,17 kg/l; pH = 12
PhytoGreen-Fulvo®: Dichte: 1,20 kg/l; pH = 5,0 - 5,5

Miscibility: The products can be mixed with usual plant protection products and foliar fertilisers.

Pack sizes:
1 l •10 l • 200 l • 1000 l
More pack sizes upon request.

PHYTO solution ... Plant nutrition with system

PhytoGreen®-HumusWP

BIOSTIMULATOR / SOIL CONDITIONER

Composition:

100% water soluble granules, for soil and foliar application

Mode of action and advantages:

- Permanent humic substance to improve soil structure, water holding capacity, cation exchange capacity (CEC) and nutrient availability.
- Growth stimulant for all agricultural and horticultural plants.
- Enhances the performance of fertilisers and reduces input-costs.
- Increases yield and improves quality of plants

Recommendations for use and application rates:

Generals:	PhytoGreen®-HumusWP can be used in all cultures separately or in combination with fertilizers. Very well suited for sandy or loamy soils.
Seed treatment:	To enhace germination and root development: 1 kg PhytoGreen®-HumusWP/100 kg seeds. Treat seeds just before sowing.
Seedlings:	To enhace root development, dip the root into a 0,05% solution (5 g PhytoGreen®-HumusWP/10 l water) before planting.
Soil application (with fertilizer application):	Apply 6-10 kg/ha and year and mix in a depth of up to 10 cm. It is recommended to use it more frequently but in rather small application rates (5 x 2 kg). It can be mixed with other soil amendments like peat, sand or compost to enhance the biological activity with 0,5-1 kg/m3.
Foliar application:	150-300 g/1000 l water every 14 days during vegetation period.

PhytoGreen®-HumusWP (water soluble granules)

Technical details:

pH (10% solution) = 9-10

Miscibility: The products can be mixed with usual plant protection products and foliar fertilisers.

In compliance with Council Regulation (EC) No 2018/848 on organic farming. Listed at FiBL Inputs list for the organic production in Germany.

Pack sizes:
1 kg • 25 kg
More pack sizes upon request.

PHYTO solution
... Plant nutrition with system

PhytoGreen®-CaMgB Carbo

STRAIGHT LIQUID INORGANIC MACRONUTRIENT FERTILISER IN SOLUTION
N (CaO-MgO) 8 (10-3) WITH BORON

Composition:

8.0% total Nitrogen (N)
10.0% water-soluble Calcium Oxide (CaO)
3.0% water-soluble Magnesium Oxide (MgO)
0.3% water-soluble Boron (B)

Mode of action and advantages:

- THE biocompatible nutrient supply - no phytotoxicity even with temperatures above 25°C
- High concentration of carboxylic acids within the formulation optimizes calcium integration in the cell walls
- Ensures high quality of fruit skin in pomaceous fruits due to the combination of calcium with boron and magnesium
- Guarantees uniformous fruit colouring and long post-harvest conservation stability

Recommendations for use and application rates:

Fruit trees (pome, stone, citric, etc.), strawberry:	2-4 l/ha in at least 200 l water/ha. Use 2-3 applications from end of May until beginning of fruit ripe. An N-free potassium fertilizer (PhytoGreen®-FruitColour) should then be used to promote fruit colouring.
Vegetables (tomato, pepper, lettuce, celery, cabbage, broccoli, etc.):	2-4 l/ha in at least 200 l water/ha every 12-15 days from the middle of the vegetative growth (leaf vegetables) or from the development of fruits (fruit vegetables) until harvest.
Asparagus:	2-3 foliar applications with 4 l/ha in at least 200 l water/ha as soon as leaf development is sufficient.
Ornamentals:	0,4% (400 ml/ 100 l water) every 10-15 days from transplant to blooming, or to maximum plant development.

Technical details:

Density: 1,4 kg/l; pH = 4

Miscibility:
PhytoGreen®-Ca-Mg-B Carbo cannot be mixed with phosphate, copper or sulphur containing products.

Pack sizes:
10 ltr. · 200 ltr. · 1000 ltr.

PhytoGreen®-CaMg Carbo

STRAIGHT LIQUID INORGANIC MACRONUTRIENT FERTILISER IN SOLUTION
N (CaO-MgO) N (CAO-MGO) 5 (10-3)

Composition:

5.0% total Nitrogen (N)
10.0% water-soluble Calcium Oxide (CaO)
3.0% water-soluble Magnesium Oxide (MgO)

Mode of action and advantages:

- Combi-product to prevent lack of calcium and Magnesiun
- High concentration of carboxylic acids within the formulation optimizes nutrient integration in the cell walls
- Ensures high quality of fruit skin in pomaceous fruits due to the combination of calcium with boron and magnesium
- Guarantees uniformous fruit colouring and long post-harvest conservation stability

Recommendations for use and application rates:

Generals:	Folira fertiliser to be applied 0,2 to 0,4% (200-400 ml/100 l Wasser)
Vine:	From flowering to ripening 2-4 l/ha in at least 200 l water/ha.
Fruit trees (pome, stone, citric, etc.), strawberry:	2-4 l/ha in at least 200 l water/ha. Use 2-3 applications from end of May until beginning of fruit ripe. An N-free potassium fertilizer (PhytoGreen®-FruitColour) should then be used to promote fruit colouring.
Vegetables (tomato, pepper, lettuce, celery, cabbage, broccoli, etc.):	2-4 l/ha in at least 200 l water/ha every 12-15 days from the middle of the vegetative growth (leaf vegetables) or from the development of fruits (fruit vegetables) until harvest.
Asparagus:	2-3 foliar applications with 4 l/ha in at least 200 l water/ha as soon as leaf development is sufficient.

Technical details:

Density: 1,3 kg/l; pH = 2-3

Miscibility:
PhytoGreen®-CaMg Carbo cannot be mixed with phosphate, copper or sulphur containing products.

Pack sizes:
10 ltr. · 200 ltr. · 1000 ltr.

PhytoGreen®-ManganeseNitrate

STRAIGHT LIQUID INORGANIC MACRONUTRIENT FERTILISER IN SOLUTION
N 7,7 WITH MANGANESE

Composition:

15,0 % Mn (235 g/l water soluble manganese)
7,7 % N (119 g/l as nitrate-N)

Mode of action and advantages:

- Improves frost tolerance of winter cultures
- Provides manganese and nitrate to the plant immediately
- The ultimate supplement to soil fertilisation during low availability from the soil

Recommendations for use and application rates:

General:	To provide manganese: 1 - 2 l/ha as foliar application in at least 200 l water. Several applications with small application rates increase the efficiency.
Berries, strawberries:	To provide manganese, for leaf quality: 2 l/ha from beginning of flowering until harvest.
Stone fruit:	2 l/ha as foliar application from beginning of fruit setting until harvest.
Pomaceous fruit:	To provide manganese, for leaf quality: several foliar applications with 1 l/ha from end of flowering (in rusting sensitive varieties only from walnut size up). For green back-ground colour: 3 foliar applications with 1 l/ha after fall of fruits in June.
Vegetables:	To provide manganese: 1-2 foliar applications with 2 l/ha.
Cereals:	To improve winter hardyness: 1-2 l/ha as foliar application in fall from 3-leaf-stage up. To provide manganese, to stabilise output: 1 - 2 l/ha as foliar application in spring from beginning of vegetation until 1-node-stage.
Oilseed rape:	To improve winter hardyness, to provide manganese: 1-2 foliar applications with 2 l/ha in fall from 3- to 6-leaf-stage.
Sugar beet:	To provide manganese: 1-2 foliar applications with 2 l/ha between 6-leaf-stage and meeting across the rows.
Potatoes:	To reduce susceptibility to scab: 1 l/ha with dressing. To provide manganese and improve skin quality: 1 - 2 foliar applications with 2 l/ha from beginning of meeting across the rows.

Technical details:

Density: 1,55 kg/l; pH < 2

Miscibility: PhytoGreen®-ManganeseNitrate cannot be mixed with phosphate, copper or sulphur containing products.

Pack sizes:
10 l • 20 l • 200 l • 1000 l
More pack sizes upon request.

PhytoGreen®-Silicon Fertilisers

PK-FERTILISER LIQUID 5-13 with silico/ Plant strengthener

Composition:

PhytoGreen®-Silicon: 7% SiO_2 (94 g/l water soluble silicon dioxide), 5% P_2O_5 (67 g/l water soluble phosphate), 13% K_2O (174 g/l water soluble potassium oxide) complexed with carboxylic acids; with 3% humic + fulvic acids

PhytoGreen®-Bio-Silicon: Suspension with plant available silicon made out of micronized vulcanic stone meal

Mode of action and advantages:

- Silicon deposits within the cells and hardens the leaves
- Enhance tolerance against abiotic stress situations (drought and heat), rises mechanical resistance to insect bites and fungus penetration
- For thicker, more stable stalks in cereals and high pod resistance in rapeseed

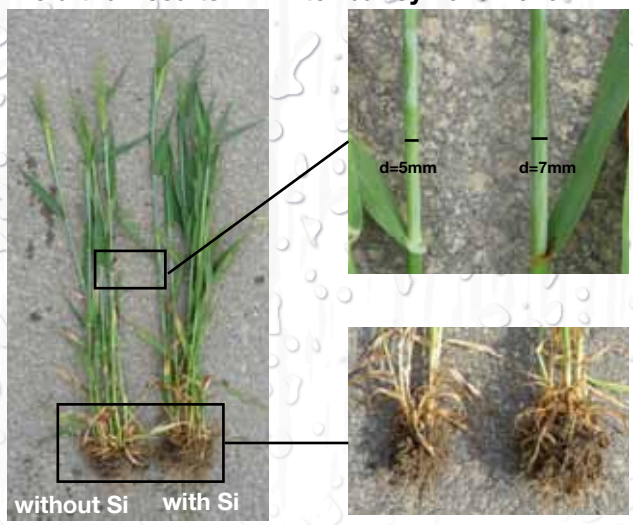
Recommendations for use and application rates:

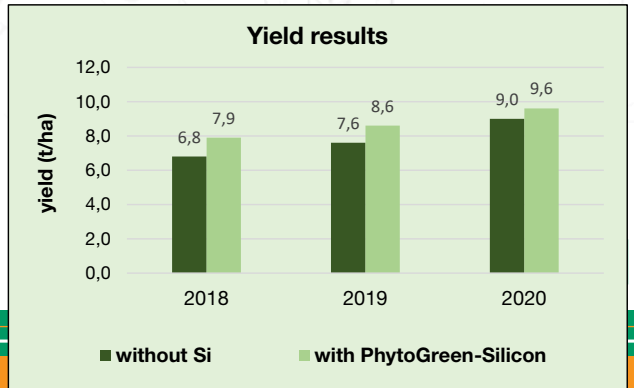
Foliar application:	PhytoGreen®-Silicon/ Bio-Silicon can be applied in all cultures, whereby foliar application guarantees highest efficacy. 1-3 treatments with 1 l PhytoGreen®-Bio-Silicon or 2 l PhytoGreen®-Silicon/ha from beginning of vegetation are recommended, winter cultures should receive the first treatment in autumn.
Soil application (with irrigation systems):	PhytoGreen®-Silicon/ Bio-Silicon can be used for all cultures. Several treatments with 5-10 l/ha from beginning of vegetation are recommended.

A list of some plant diseases that have had their intensities reduced by silicon application is summarized in the following table (according to Rodrigues, F. A. & Datnoff, L.D. (2015): Silicon and Plant diseases. Springer-Verlag):

Crop	Diseases
Barley	Black point, Powdery mildew
Bean	Anthracnose, Angular leaf spot
Corn	Pythium root and Stalk rot, Corn smut
Cucumber	Powdery mildew, Anthracnose, Leaf spot, Crown and Root rot, Grey mold rot, Black rot, Fusarium wilt
Lettuce	Downy Mildew, Fusarium wilt
Melon	Powdery mildew, Fusarium root rot, Alternaria
Rice	Blast, Brown spot, Sheat blight, Leaf scald, Stem rot, Root knod nematodes, Grain discoloration
Rye	Powdery mildew
Strawberries	Powdery mildew, Anthracnose
Soybean	Rust, Phytophtora root rot, Stem cancer
Tomato	Fusarium crown and root rot, Pythium root rot, Bacterial wilt
Wheat	Powdery mildew; Septoria leaf and Spot blotch, Leaf blast, Eyespot, Bacterial leaf streak, Foot rot

Field trial results in winter barley 2018-2020





Technical details:

PhytoGreen®-Silicon: Density: 1,25 kg/l; pH = 12
PhytoGreen®-Bio-Silicon: Density: 1,3 kg/l; pH ca. 8

Pack sizes:
1 l • 10 l • 200 l • 1000 l
More pack sizes upon request.

PhytoGreen®-MultimicroMix Carbo

MICRO-NUTRIENT MIXTURE LIQUID WITH SULPHUR AND MAGNESIUM

Composition:

0,3% B (Boron), **0,5% Cu** (Copper), **1,5% Fe** (Iron), **1,5% Mn** (Manganese), **0,1% Mo** (Molybdenum)
2,0% Zn (Zinc), **3,5% MgO** (Magnesium oxide) and **6,0% S** (Sulphur)

Mode of action and advantages:

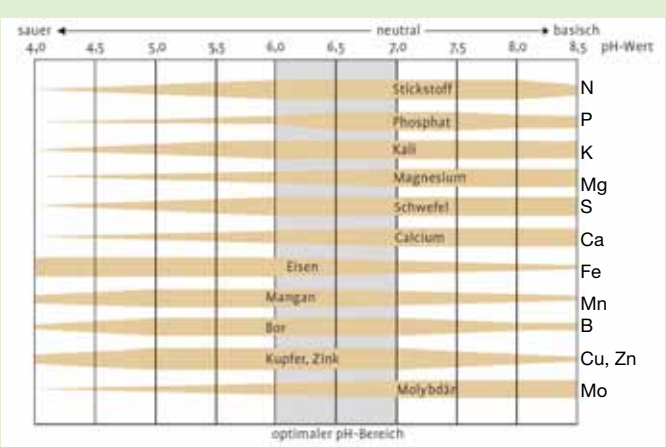
- Directly plant available micro-nutrients, sulphur and magnesium formulated with carboxylic acids to prevent any lack situations
- Very well compatible, no phytotoxicity
- Improve growth and vitality of the culture as well as yield quality
- Lower pH in the application broth

Recommendations for use and application rates:

All cultures:
PhytoGreen®-MultimicroMix Carbo should be applied preventively against nutrients lack, or when early symptoms of them are observed. The treatment migth be repeated after 15-20 days if necessary.

Application rates:
Foliar application: 5 l/ha.
Soil/ Root application: 4-8 l/ha

PhytoGreen®-MultimicroMix Carbo must be applied with enough water to reach a throughout coverage of the full leave area. It is recommended to apply this product at the beginning of the day or during night. Moreover, it can also be used via soil in fertigation, spraying, dripping, etc.. PhytoGreen®-MultimicroMix Carbo can be applied together with other products, although it is recommended to perform a miscibility test previously.



Availability of nutrients in the soil depending on pH of the soil. Lack of nutrients within the plants due to low availability from the soil can easily be prevented with foliar fertilisation, especially concerning micro nutrients.

(Source: Bundeministerium für die Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft Wien (2006): Richtlinien für die sachgerechte Düngung, 6. Auflage)

Technical details:

Density: 1,34 kg/l; pH = 2

Miscibility:
The product can be mixed with usual plant protection products and other foliar fertilisers.

Pack sizes:
1 l • 10 l • 200 l • 1000 l
More pack sizes upon request.

PhytoGreen®-Boron Fertilisers

BORETHANOLAMINE and CALCIUMBORATE SUSPENSION

Composition:

PhytoGreen®-Boron: 11% B (150 g/l water soluble boron as Borethanolamine)

PhytoGreen®-Calciumborate: 7 % Boron (101 g B/l) , 12 % Calciumoxide (173 g CaO/l)

Mode of action and advantages:

- To provide boron - as water soluble Boronethanolamine or as suspension in combination with Calcium
- Enhance growth of meristem, provide regular blossom-time and fruit setting
- Ensure the output

Recommendations for use and application rates:

General:	To provide boron: 1-3 l/ha as foliar application with 200-400 l water/ha or 4-8 l/ha as soil application.
Strawberries:	For flower quality, fruit setting and against deformed berries: one foliar application with 1 l/ha at green bud, 2 l/ha in autumn.
Vine:	For flower quality, fruit setting, regular maturity and vine quality: two foliar applications with 0,5-1 l/ha from increasing of flower cluster until beginning of blossom.
Hop:	For good shoot and blossom development: from enough foliage until beginning of blooming 3-5 applications with 0,1% (100 ml/ 100l water).
Stone fruit:	For flower quality and fruit setting: 2 l/ha at beginning of blooming and 2 l/ha after harvest as foliar applications.
Pip fruit:	For flower quality, fruit setting and skin quality: three foliar applications with 1 l/ha from red bud until petal fall, one foliar application with 2 l/ha after harvest.
Maize:	For pollen quality and graining: 3 l/ha from 4- to 10-leaf-stage as foliar application.
Green vegetables, brassica:	For inner quality, against heart necrosis: 2-3 l/ha as soon as enough leaves are developped as foliar application.
Sugar beet:	Against heart and dry rot: one or two foliar applications with 3 l/ha from 4- to 6-leaf-stage until meeting across the rows.
Fruiting vegetable, root crops:	For fruit setting and fruit quality: 2-3 l/ha as soon as enough leaves are developped as foliar application.
Potatoes:	For inner quality: one or two foliar applications with 1 l/ha from meeting across the rows.
Oilseed rape:	For regular blossom-time and maturity, output: 3 l/ha in autumn from 4- to 6-leaf stage as foliar application. At high boron deficiency repeat treatment in spring.
Winter cereal:	To provide boron especially under dry wheather: 1-2 applications with 0,5 l/ha (BBCH 30 - 37)

Technical details:

PhytoGreen®-Boron: Density: 1,36 kg/l, pH = 7,9
PhytoGreen®-Calciumborate: Density: 1,44 kg/l; pH = 7,5

Miscibility: PhytoGreen®-Calciumborate cannot be mixed with posphates or sulfates. PhytoGreen®-Boron can be mixed with usual plant protection products.

PhytoGreen®-Boron is in compliance with Council Regulation (EC) No 2018/848 on organic farming. Listed at FiBL Inputs list for the organic production in Germany .

Pack sizes:
1 l • 10 l • 200 l • 1000 l

PhytoGreen®-Calcium Fertilisers

out of CALCIUM NITRATE or CALCIUM CARBONATE

Composition:

CARBO-ECO CaB: **8,0% CaO** (92 g/l water soluble Calciumoxide = 65 g Ca/l)
0,3% B (Bor), **23,0% Seaweed extract** (*Ascophyllum nodosum*)

PhytoGreen®-CalciumCarboxylate: **13,5% CaO** (182 g/l water soluble Calciumoxide = 130 g Ca/l)
8,0% N (108 g/l water soluble nitrogen)

Phytosol®: **27% CaO (400 g CaO/l) out of micronized calcium carbonate ($CaCO_3$) as suspension**

Mode of action and advantages:

- Directly plant available Calcium out of Calciumcarbonate (CARBO-ECO CaB, Phytosol®) or Calciumnitrate (PhytoGreen®-CalciumCarboxylate)
- With natural carboxylic acids for best nutrient uptake
- Enhance fruit quality
- Help to prevent bitter pit and pysiological storage diseases

Recommendations for use and application rates:

	PhytoGreen®-CalciumCarboxylate	CARBO-ECO CaB	Phytosol®
General:	To provide calcium: 2-4 l/ha applied on the leaves with a minimum of 500 l water/ha.	To provide calcium: 6-20 l/ha applied on the leaves with a minimum of 500 l water/ha (2-5%)	2-4 l/ha in 200-400 l water/ha. 2-4 applications in intervals of 10-14 days are recommended.
Vine:	Several foliar applications with 4 l/ha as soon as flower cluster are visible until harvest.	Several foliar applications with 8 l/ha as soon as flower cluster are visible.	2 l/ha before blooming, 4 l/ha at the end of blooming and 2 further treatments with 4 l/ha every 14 days.
Pip fruit:	For fruit firmness and colouring, to prevent bitter pit and physiological storage diseases: several foliar applications with 4 l/ha from walnut size up every eight days.	For fruit firmness and colouring, to prevent bitter pit and physiological storage diseases: several foliar applications with 8 l/ha from walnut size up every eight days.	2 l/ha from 2-leaf-stage on and 3 further applications with 4 l/ha every 10-14 days.
Stone fruit:	2-3 foliar applications with 4 l/ha from beginning of blooming until harvest.	2-3 foliar applications with 8 l/ha from beginning of blooming until harvest.	
Strawberries:	3-4 times 4 l/ha from beginning of blossom.	3-4 times 8 l/ha from beginning of blossom.	3 l/ha at 10-15 cm plant heigth, second application of 4 l/ha after 14 days.
Vegetables:	To prevent inner necrosis and leaf-edge necrosis: several foliar applications with 2-4 l/ha as soon as foliage has developped sufficiently.	To prevent inner necrosis and leaf-edge necrosis: 3 applications with 8 l/ha as soon as foliage has developped sufficiently.	4 l/ha from 2-leaf-stage on and 1-2 further applications with 4 l/ha every 10-14 days.
Potatoes:	1-2 foliar applications with 4 l/ha from meeting across the rows.	1-2 foliar applications with 8 l/ha from meeting across the rows.	3 l/ha at 10-15 cm plant heigth, 2-3 further applications with 4 l/ha.
Sugar beet:	Zur Erhöhung der Lagerstabilität von Spätrüben bei letzter Fungizidspritzung 2 l/ha. Vorher bei Bedarf 1 l/ha zu den Fungizidmaßnahmen.	Zur Erhöhung der Lagerstabilität von Spätrüben bei letzter Fungizidspritzung 4 l/ha. Vorher bei Bedarf 2 l/ha zu den Fungizidmaßnahmen.	3 l/ha at 10-15 cm plant heigth, 2-3 further applications with 4 l/ha.
Ornamentals:	Several foliar applications with 2-4 l/ha every 10-14 days.	Several foliar applications with 4-8 l/ha every 10-14 days.	

Technical details:

CARBO-ECO CaB: Density 1,15 kg/l, pH= 5-7
PhytoGreen®-CalciumCarboxylate: Density: 1,35 kg/l; pH=6,1
Phytosol®: Density: 1,47 kg/l; pH = 9,3

CARBO-ECO CaB and Phytosol® are in compliance with Council Regulation (EC) No 2018/848 on organic farming. Listed at FiBL Inputs list for the organic production in Germany.

Miscibility: The products can be mixed with usual plant protection products.

Pack sizes:
10 l • 20 l • 200 l • 1000 l
More pack sizes upon request.

PhytoGreen®-Copper Fertilisers

COPPER OXYCHLORIDE SUSPENSION and COPPER FERTILISER LIQUIDS

Composition:

PhytoGreen®-Cu256: 19,25% Cu (256 g copper/l)
PhytoGreen®-CopperCarboxylate; CARBO-ECO Cu: 5% water soluble copper (58 g/l Cu)
formulated with carboxylic acids

Mode of action and advantages:

- To provide copper immediately
- Correct and prevent copper deficiency in any culture
- High concentrated suspension or water solble formulations with Carboxylates
- Quick uptake into the plant and metabolism
- Very plant-friendly

Recommendations for use and application rates:

	PhytoGreen®-Cu256	PhytoGreen®-CopperCarboxylate/ CARBO-ECO Cu
General:	To provide copper: - 0,25 l/ha at low deficiency/ to prevent lack, - 0,5 l/ha at medium deficiency, - 0,75 l/ha at high deficiency as a foliar application in 200-400 l water/ha. Repeat treatment if necessary.	To provide copper: 2-4 l/ha as a foliar application in 200-400 l water/ha.
Vine:	To prevent and repair copper deficiency: several foliar applications with 0,25 - 0,75 l/ha from green sprout tops until closing of grapes.	To prevent and repair copper deficiency: several foliar applications with 2-3 l/ha from green sprout tops until closing of grapes.
Cereals:	To provide copper, for resistence against cold, resistance to lodging, output, corn quality: 1 foliar application with 0,25 - 0,75 l/ha from 3-leaf-stage until end of tillering, repeat treatment if necessary.	To provide copper, for resistence against cold, resistance to lodging, output, corn quality: 1 foliar application with 2-3 l/ha from 3-leaf-stage until end of tillering, repeat treatment if necessary.
Corn:	To provide copper: 0,25 l/ha from 6-leaf stage.	To provide copper: 2 l/ha from 6-leaf stage as foliar application.
Cucumber:	0,25 - 0,75 l/ha in 200 - 400 l water/ha as foliar application.	To provide copper: 2 l/ha as foliar application from 4-leaf-stage, repeat treatment if necessary.

Technical details:

PhytoGreen®-Cu256: Density 1,33 kg/l; pH = 7-9
PhytoGreen®-CopperCarboxylate: Density 1,14 kg/l; pH = 2,4
CARBO-ECO Cu: Density 1,16 kg/l; pH = 1,3

Miscibility: The products can be mixed with usual plant protection products.

Pack sizes:
1 l • 5 l • 10 l • 200 l
More pack sizes upon request.

PhytoGreen®-Cu256 and CARBO-ECO Cu are in compliance with Council Regulation (EC) No 2018/848 on organic farming. Listed at FiBL Inputs list for the organic production in Germany.

PhytoGreen®-Iron Fertilisers

IRON FERTILISER LIQUIDS (Carboxylates)

Composition:

PhytoGreen®-IronCarboxylate: 5% water soluble iron (58,5 g/l Fe) **formulated with carboxylic acids**
CARBO-ECO Fe: 5% water soluble iron (58,5 g/l Fe) **formulated with carboxylic acids**

Mode of action and advantages:

- Quick absorption and action in the plant
- Correct and prevent the lack of iron in any culture
- With natural carboxylic acids to enhance vitality
- Promote growth and yield quality

Recommendations for use and application rates:

General:	To prevent and remedy iron-induced chlorosis: 2-5 l/ha as foliar application or 5-8 l/ha as soil application.
Berry fruits:	1-2 foliar applications with 3-5 l/ha from beginning of vegetation until harvest.
Stonefruit:	1-2 foliar applications with 3-5 l/ha from fruit setting until harvest.
Pip fruit:	Leaf development, fruit setting, yield: 3-5 l/ha as foliar application during full flowering, finish flowering, post flowering and at hazelnut size. To achieve a plain shell, against greasiness, to prevent and remedy iron-induced chlorosis: 1-2 times with 5 l/ha as of walnut size.
Vine:	4 foliar applications with 3-5 l/ha after sprouting until the grapes have reached their full size.
Arable farming:	Several foliar applications with 3-5 l/ha.
Zierpflanzen:	4 foliar applications with 30-50 ml/100 m² (3-5 l/ha).
Mediterranean plants and citrus:	0.5-1.0% as foliar application.

Iron deficiency symptoms on vine (left) and strawberries (right) as an example: yellow-greenish, later yellow-white chlorosis with sharp green veins. Symptoms start on the youngest leaves.

Technical details:

PhytoGreen®-IronCarboxylate: Density: 1,17 kg/l; pH = 2,4
CARBO-ECO Fe: Density: 1,17 kg/l; pH = 1,2

Miscibility:
The products can be mixed with usual plant protection products.

Pack sizes:
10 ltr. · 200 ltr. · 1000 ltr.

CARBO-ECO Fe is in compliance with Council Regulation (EC) No 2018/848 on organic farming. Listed at FiBL Inputs list for the organic production in Germany.

PhytoGreen®-Potassium Fertilisers

NK-FERTILISER LIQUID / POTASSIUM-FERTILISER LIQUID

Composition:

PhytoGreen®-PotassiumCarboxylate high: 33% K_2O (502 g/l water soluble potassium), 3% N (45 g/l total nitrogen) **formulated with carboxylic acids**

PhytoGreen®-PotassiumCarboxylate pH-neutral and CARBO-ECO K: 20% K_2O (264 g/l water soluble potassium) **formulated with carboxylic acids**

Mode of action and advantages:

- To supply potassium immediately
- Correct and prevent the lack of potassium in any culture
- Formulation with water soluble carboxylic acids guarantees quick uptake and metabolism
- Highly compatible

Recommendations for use and application rates:

	PhytoGreen®-PotassiumCarboxylate high	PhytoGreen®-PotassiumCarboxylate pH neutral and CARBO-ECO K
General:	Foliar application: 150-500 ml/100 l water. Soil application: 10-20 l/ha or 1% (1 l with 100 l water) in fertigation.	Foliar application: 200-400 ml/100 l water. Soil application: 10-20 l/ha or 1% (1 l with 100 l water) in fertigation.
Pip fruit:	For fruit colouring, to provide potassium: 2-5 foliar applications with 4 l/ha from June.	For fruit colouring, to provide potassium: 2-4 foliar applications with 4 l/ha from June.
Vine:	Several foliar application with 4-5 l/ha as soon as enough leaves are developed.	Several foliar application with 4 l/ha as soon as enough leaves are developed.
Table grapes:	To provide potassium, for higher sugar contents: 1 foliar application with 4-5 l/ha as soon as berries start getting smooth.	To provide potassium, for higher sugar contents: 1 foliar application with 4-5 l/ha as soon as berries start getting smooth.
Vegetables:	To provide potassium: several foliar applications with 3-5 l/ha as soon as enough leaves are developed.	To provide potassium: several foliar applications with 3-4 l/ha as soon as enough leaves are developed.
Cereal:	Two foliar applications with 3-5 l/ha.	Two foliar applications with 3-4 l/ha.
Corn:	5 l/ha as foliar application (with fungicides)	4 l/ha as foliar application (with fungicides)
Potatoes:	To provide potassium, to prevent blue/ black spots: 3 foliar applications with 4-7 l/ha during bulb formation.	To provide potassium, to prevent blue/ black spots: 3 foliar applications with 4-7 l/ha during bulb formation.

Technical details:

PhytoGreen®-PotassiumCarboxylate high: Density: 1,5 kg/l; pH=13
PhytoGreen®-PotassiumCarboxylate pH neutral: Density: 1,3 kg/l; pH=7
CARBO-ECO K: Density: 1,2 kg/l; pH=7

CARBO-ECO K is in compliance with Council Regulation (EC) No 2018/848 and listed for organic production in Germany.

Miscibility:
The products can be mixed with usual plant protection products.

Pack sizes:
10 l • 20 l • 200 l • 1000 l
More pack sizes upon request.

PhytoGreen®-Manganese Fertilisers

OUT OF MANGANESECARBONATE OR -SULFATE

Composition:

PhytoGreen®-Mn27: 27% Mn (500 g/l Manganese out of $MnCO_3$)

PhytoGreen®-ManganeseCarboxylate 10% water soluble Manganese (138 g/l Mn) **+ carboxylic acids**
CARBO-ECO Mn: 5% water soluble Manganese (58 g/l Mn) **+ carboxylic acids**

PhytoGreen®-Manganese150: 10,9% water soluble Manganese (150 g/l Mn) our of $MnSO_4$

Mode of action and advantages:

- Provide manganese immediately
- Correct and prevent the lack of manganese in any culture
- Formulated as high concentrated suspension or as water soluble carboxylates
- Improve quality, vitality and output

Recommendations for use and application rates:

	PhytoGreen®-Mn27	PhytoGreen®-ManganeseCarboxylat/ CARBO-ECO Mn Rates given are for Carbo-Eco. Take half for PhytoGreen®-ManganeseCarboxylate.	PhytoGreen®-Manganese150
General:	To provide manganese: 0,5-2 l/ha or 0,2-1,0% as foliar application.	To provide manganese: 2-5 l/ha as foliar application or 5-8 l/ha via the soil.	Marginal Deficiency: 2.0 l/ha in at least 200 litres of water. Moderate deficiency: 4.0 l/ha in at least 200 litres of water. Severe deficiency: 4.0 l/ha in at least 200 litres of water and repeat as necessary during the growing season.
Strawberries:	To provide manganese, for vitality and output: 1-2 applications with 1 l/ha from beginning of flowering until harvest.	1-2 foliar applications with 2 l/ha from beginning of flowering until harvest.	
Pip fruit:	For leaf quality, to provide manganese: several applications with 0,5-1 l/ha from hazelnut size up. To achieve a green back-ground colour: 3 applications with 0,5 l/ha from walnut size up.	To provide manganese: several foliar applications with 2-3 l/ha from hazelnut size up. To achieve a green back-ground colour: 3 foliar applications with 2 l/ha from walnut size up.	
Stonefruit:	For leaf quality: 1 l/ha from fruit setting up.	2-3 l/ha as foliar application from fruit setting.	
Vine:	To optimize photosynthesis: 2 - 3 applications with 1 l/ha as soon as flower clusters are visible.	2 - 3 foliar applications with 2-3 l/ha as soon as flower clusters are visible.	
Vegetables:	For leaf quality and resistance: 1-2 applications with 1 l/ha as soon as enough leaves are developed.	1-2 foliar applications with 2-3 l/ha as soon as enough leaves are developed.	
Potatoes:	To reduce the susceptibility to scab: 0,5 l/ha with dressing. For skin quality and output: 1-2 applications with 1 l/ha from 1 week after beginning of vegetation.	1-2 foliar applications with 2-3 l/ha from 1 week after beginning of vegetation up.	
Cereals:	For resistance to cold and lodging, for output: 1-2 applications with 0,5-1 l/ha from 2-leaf-stage on.	For resistance to cold and lodging, for output: 1 foliar applications in autumn with 2-3 l/ha from 2-leaf-stage.	
Sugar beet:	For resistance and output: 1-2 applications with 1 l/ha from 4-leaf-stage on.	2-3 foliar applications with 2 l/ha from 4-leaf-stage.	
Oilseed rape:	For resistance and output: 1-2 applications with 0,5-1 l/ha from 8-leaf-stage on.	For resistance and output: 1-2 foliar applications with 2-3 l/ha from 8-leaf-stage.	

Technical details:

PhytoGreen®-Mn27: Density: 1,81 kg/l; pH = 8,4
PhytoGreen®-ManganeseCarboxylat: Density: 1,38 kg/l; pH = 5
CARBO-ECO Mn: Density: 1,16 kg/l; pH = 1,76
PhytoGreen®-Mangan150: Density: 1,37 kg/l; pH = 4-7

PhytoGreen®-Mn27 and CARBO-ECO Mn are in compliance with Council Regulation (EC) No 2018/848 and listed for organic production in Germany.

Miscibility:
The products can be mixed with usual plant protection products.

Pack sizes:
1 l • 5 l • 10 l • 200 l • 1000 l

PhytoGreen®-Magnesium Fertilisers

OUT OF MAGNESIUMHYDROXIDE; MAGNESIUMNITRATE OR -SULFATE

Composition:

PhytoGreen®-Mg500: 500 g/l Magnesiumoxide (34% MgO)
PhytoGreen®-MagnesiumCarboxylate: 9% water soluble Magnesiumoxide (134 g/l MgO),
6% water soluble nitrogen **with carboxylic acids**
CARBO-ECO Mg: 5% water soluble Magnesiumoxide (59 g/l MgO) **with carboxylic acids**
10% water soluble sulphur trioxide (equivalent 48 g S/l)

Mode of action and advantages:

- Correct and prevent Magnesium deficiency in every culture
- High concentrated suspension or water soluble carboxylates
- Quick absorption and direct plant availability
- To prevent Botrytis or stem necrosis in vine, for high quality grapes

Recommendations for use and application rates:

	PhytoGreen®-Mg500	PhytoGreen®-MagnesiumCarboxylat	CARBO-ECO Mg
General:	Foliar fertiliser to provide magnesium: 3-4 l/ha, concentration: 0.5-1% (foliar).	Leaf fertiliser to provide magnesium: 1-2 l/ha, concentration: 0.25-0.5% (foliar).	Leaf fertiliser to provide magnesium: 2-5 l/ha, concentration: 0.2-0.5% (foliar).
Pip fruit:	Several foliar applications with 4 l/ha from finish flowering (in case of varieties susceptible to russeting apply only when the fruit has grown to the size of a walnut).	Several foliar applications with 2 l/ha from finish flowering (in case of varieties susceptible to russeting apply only when the fruit has grown to the size of a walnut).	Several foliar applications with 5 l/ha from finish flowering (in case of varieties susceptible to russeting apply only when the fruit has grown to the size of a walnut).
Strawberries:	Yield, vitality, magnesium supply: 2-3 times 4 l/ha from start of blooming period until harvest.	Yield, vitality, magnesium supply: 2-3 foliar applications with 2 l/ha from start of blooming period until harvest.	Yield, vitality, magnesium supply: 2-3 foliar applications with 5 l/ha from start of blooming period until harvest.
Vine:	To prevent lack of magnesium and stem necrosis, leaf quality: several applications with 3-4 l/ha when inflorescences are visible until one month before vintage.	To prevent lack of magnesium and stem necrosis, leaf quality: several foliar applications with 2 l/ha when inflorescences are visible until one month before vintage.	To prevent lack of magnesium and stem necrosis, leaf quality: several foliar applications with 5 l/ha when inflorescences are visible until one month before vintage.
Stonefruit:	To avoid early falling of leaves, to supply magnesium: 2-3 times 4 l/ha from start of blooming period until harvest.	To avoid early falling of leaves, to supply magnesium: 2-3 foliar applications with 2 l/ha from start of blooming until harvest.	To avoid early falling of leaves, to supply magnesium: 2-3 foliar applications with 5 l/ha from start of blooming until harvest.
Vegetables:	To support leaf quality, leaf colour, photosynthesis, to supply magnesium: 1-2 times 4 l/ha as soon as leaves have grown sufficiently.	To support leaf quality, leaf colour, photosynthesis, to supply magnesium: 1-2 foliar applications with 2 l/ha as soon as leaves have grown sufficiently.	To support leaf quality, leaf colour, photosynthesis, to supply magnesium: 1-2 foliar applications with 5 l/ha as soon as leaves have grown sufficiently.
Potatoes:	To prevent early leaf dying, to gain a better yield, to supply with magnesium: 1-2 times 4 l/ha from closing of rows.	To prevent early leaf dying, to gain a better yield, to supply with magnesium: 1-2 foliar applications with 2 l/ha from closing of rows.	To prevent early leaf dying, to gain a better yield, to supply with magnesium: 1-2 foliar applications with 5 l/ha from closing of rows.
Ornamental plants:	To support leaf quality, leaf colour, photosynthesis, to supply with magnesium: 1-2 foliar applications with 4 l/ha as soon as leaves have developed sufficiently.	To support leaf quality, leaf colour, photosynthesis, to supply with magnesium: 1-2 foliar applications with 2 l/ha as soon as leaves have developed sufficiently.	To support leaf quality, leaf colour, photosynthesis, to supply with magnesium: 1-2 foliar applications with 5 l/ha as soon as leaves have developed sufficiently.

Technical details:

PhytoGreen®-Mg500: Density: 1,44 kg/l; pH = 10
PhytoGreen®-MagnesiumCarboxylat: Density: 1,34 kg/l; pH = 2,0
CARBO-ECO Mg: Density: 1,19 kg/l; pH = 1,5

CARBO-ECO Mg is in compliance with Council Regulation (EC) No 2018/848 and listed for organic production in Germany.

Miscibility:
The products can be mixed with usual plant protection products.

Pack sizes:
10 l • 20 l • 200 l • 1000 l

PhytoGreen®-Molybdenum

STRAIGHT INORGANIC MICRONUTRIENT FERTILISER IN SOLUTION

Composition:

15,6 % Mo (215 g/l water soluble Molybdenum)

Mode of action and advantages:

- Quick absorption and direct availability
- Provides Molybdenum for the youngest leaves especially
- The ultimate supplement to soil fertilisation if availability is low (on light and acidic soils, during drought etc.)

Recommendations for use and application rates:

General:	To prevent molybdenum: 0,15-0,25 l/ha as foliar application with at least 200 l water/ha.
Oilseed rape:	To provide molybdenum, against „whiptail“ symptoms: 1-2 foliar applications with 0,15-0,25 l/ha from beginning of shooting.
Cereal:	To provide Molybdenum, for high yield quality: 1 foliar application with 0,15-0,25 l/ha when first awns visible (in awned forms only) / BBCH 49.
Crucifers, leaf vegetables, bulbous vegetables:	To provide molybdenum, against „whiptail“ symptoms, against deformed leaves (shape of hook): 1-2 foliar applications with 0,25 l/ha as soon as enough leaves are developed .
Sugar beet:	To provide molybdenum, against „whiptail“ symptoms: 1-2 foliar applications with 0,15-0,25 l/ha between 6-leaf-stage and meeting across the rows.
Grassland:	Improvement of the nodule formation of legumes: in spring from the beginning of vegetation 1-2 times 0.25 l/ha.
Lupins:	To provide molybdenum: 0,25 l/ha from 6-leaf-stage on.
Hop:	To provide molybdenum: 0,15 l/ha as soon as enough leaves are developed.

Technical details:

Density: 1,37 kg/l

Miscibility:
PhytoGreen®-Molybdenum can be mixed with usual plant protection products.

Pack sizes:
1 l • 5 l
More pack sizes upon request.

PhytoGreen®-Molybdenum is in compliance with Council Regulation (EC) No 2018/848 and listed for organic production in Germany.

PhytoGreen®-Sulphur800

SULPHUR FERTILISER-SUSPENSION, MICRONIZED

Composition:

56 % sulphur (800 g S/l) based on micronized elemental sulphur

Mode of action and advantages:

- Liquid formulation for direct sulphur supply via the leaves
- For yield and quality - sulphur is used to build amino acids, proteins, enzymes and vitamins.
- raises oil content and feeding qualities

Recommendations for use and application rates:

General:	To prevent and repair sulphur deficiency: several applications with 2-10 l/ha as a foliar application with at least 300 l water/ha. In case of application together with other products, do not exceed the amount of 1 l PhytoGreen®-Sulphur800 per 50 l of water.
Raps:	To provide sulphur and to support N-assimilation; for high oil contents: 1-2 applications with 5 l/ha from 6-leaf stage until beginning of blossom.
Cereal:	To provide sulphur and to support N-assimilation; to reduce susceptibility to mildew: 1-2 applications with 3 l/ha from beginning of tillering.
Hop:	To prevent and repair sulphur deficiency: several applications with 0,2-0,4% as needed.
Vine:	Maximum 8 applications: 3 - 4 l/ha from green sprout tops (BBCH09), 4 l/ha at blossom (BBCH61) and after blossom (BBCH71), further applications until one month before vintage. Water amount: 200 - 1000 l/ha.

Technical details:

Density: 1,42 kg/l, pH = 8

Miscibility: PhytoGreen®-Sulphur can be mixed with usual plant protection products.

Pack sizes:
1 l • 10 l • 200 l • 1000 l

PhytoGreen®-Sulphur800 is in compliance with Council Regulation (EC) No 2018/848 and listed for organic production in Germany.

PhytoGreen®-Zinc Fertilisers

OUT OF ZINC OXIDE AND ZINC SULFATE

Composition:

PhytoGreen®-Zinc40: 40 % zinc (700 g/l Zn)

PhytoGreen®-ZincCarboxylate 10% water soluble Zinc (130 g/l Zn) + **carboxylic acids**
CARBO-ECO Zn: 5% water soluble Zinc (58 g/l Zn) + **carboxylic acids**

Mode of action and advantages:

- Supply zinc (zinc bioavailability is low at high phosphor level/ in cold and wet, humus-rich soils / in soils with high pH value)
- Formulated as high concentrated suspension or as water soluble carboxylates
- Quick absorption and direct availability

Recommendations for use and application rates:

	PhytoGreen®-Zn40	PhytoGreen®-ZincCarboxylat/	CARBO-ECO Zn
General:	For zinc supply: 1-2 l/ha as foliar application in at least 200 l of water.	For zinc supply: 1-2 l/ha as foliar application in at least 200 l of water or 2.5-4 l/ha via the soil.	For zinc supply: 2-4 l/ha as foliar application in at least 200 l of water or 5-8 l/ha via the soil.
Strawberries:	For bud formation and cold hardiness: 1 l/ha in fall.	For bud formation and cold hardiness: 1.5-2 l/ha in fall.	For bud formation and cold hardiness: 3-4 l/ha in fall.
Pomaceous and stone fruit:	For initial development, emergence, leaf quality: 1-2 application from Red Bud until fruit fall and/or after harvest with		
	1 l/ha	1.5-2 l/ha	3-4 l/ha
Vine:	For flowering, fruit set, uniform ripening, wine quality: 1 application when inflorescences are increasing with		
	1 l/ha	1.5-2 l/ha	3-4 l/ha
Mediterranean and citrus plants:	Foliar application with 0,25%.	Foliar application with 0,1 - 0,25%.	Foliar application with 0,25 - 0,5%.
Cereals:	For increased yield and grain quality one foliar application from 2-leaf stage with		
	1 l/ha	1 l/ha	2 l/ha
Corn:	For corncob filling: from 4-leaf stage 1-2 foliar applications with		
	1 l/ha	1-1.5 l/ha .	2-3 l/ha
Vegetables:	For leaf quality, initial development: 1 foliar application as soon as enough leaves are developed with		
	0.5-1 l/ha	1-2 l/ha	2-4 l/ha
Ornamentals:	For leaf quality and growth: in the greenhouse 4 foliar applications with		
	60-80 ml/100 m² (1-2 l/ha).	0.1-0,25 %	0.25-0,5 %
Hop:	For bud and sprout growth and quality: at a height of 1 m / before flowering 3 foliar applications with		
	0.03-0.05 %	0.025 % .	0.05 %

Technical details:

PhytoGreen®-Zn40: Density: 1,71 kg/l; pH = 9
PhytoGreen®-ZinkCarboxylate: Density: 1,16 kg/l; pH = 5,5
CARBO-ECO Zn: Density: 1,17 kg/l; pH = 1,49

PhytoGreen®-Zn40 and CARBO-ECO Zn are in compliance with Council Regulation (EC) No 2018/848 and listed for organic production in Germany.

Miscibility:
The products can be mixed with usual plant protection products.

Pack sizes:
1 l • 5 l • 10 l • 200 l • 1000 l

PhytoGreen®-SeedStarter

ORGANIC-MINERAL NK-FERTILISER with trace elements

Mode of action and advantages:

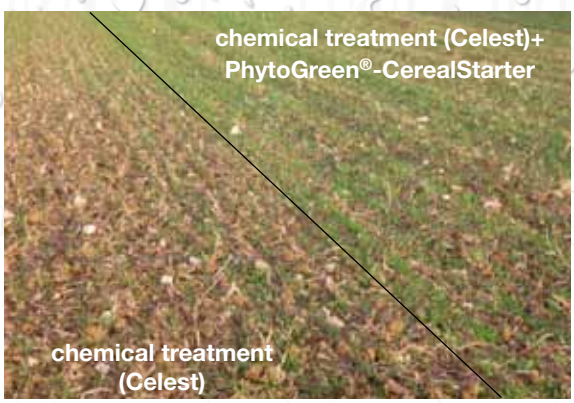
- For optimized initial supply of seeds with nutrients
- Special compositions depending on nutrient demands of each culture
- Improve uniform germination and promote root growth
- For quick and healthy youth development
- Enhances winter hardiness

Composition:

	PhytoGreen®-CerealStarter	PhytoGreen®-PotatoeStarter	PhytoGreen®-LegumeStarter	PhytoGreen®-CornStarter
Nitrogen (N)	2,0% (27 g/l)	1,0% (15 g/l)	1,5% (20 g/l)	1,0% (16 g/l)
Phosphate (P_2O_5)	0,1% (1,3 g/l)	0,08% (1 g/l)	0,1% (1 g/l)	0,1% (1,5 g/l)
Potassium (K_2O)	2,5% (32 g/l)	1,0% (15 g/l)	2,3% (30 g/l)	2,0% (32 g/l)
Calcium (Ca)			0,3% (4 g/l)	1,6% (28 g/l)
Magnesium (Mg)		1,0% (13 g/l)	0,2% (2 g/l)	1,0% (16 g/l)
Sulphur (S)	0,2% (2,7 g/l)	1,8% (23 g/l)	0,7% (9 g/l)	2,0% (32 g/l)
Boron (B)	0,2% (2,5 g/l)	0,4% (5,5 g/l)	1,5% (20 g/l)	0,2% (3 g/l)
Iron (Fe)			0,01% (0,15 g/l)	
Copper (Cu)	0,6% (7 g/l)	1,2% (17 g/l)	0,5% (7 g/l)	1,2% (20 g/l)
Manganese (Mn)	4,4% (56 g/l)	3,0% (40 g/l)	4,0% (52 g/l)	12% (200 g/l)
Molybdenum (Mo)	0,1% (1,2 g/l)	0,3% (4,7 g/l)	0,1% (0,8 g/l)	0,3% (5 g/l)
Zinc (Zn)	1,6% (20 g/l)	3,0% (40 g/l)	3,1% (40 g/l)	6,0% (100 g/l)
Seaweed	yes	yes	yes	yes
Humic acids	-	yes	-	-
Density (kg/l)	1,3	1,25	1,3	1,6

Recommendations for use and application rates:

General:	PhytoGreen®-SeedStarter are sprayed evenly on the seeds and can be applied together with chemical seed treatment.
Cereal:	200 ml / 100 kg seeds (2 l / 1 tonne of seeds)
Potatoes:	200 ml/t seed potatoes to be applied on the seed potatoes before planting (500 ml/ha with 2,5 t potatoes/ha)
Legumes:	200 ml / 100 kg seeds (220 ml/ha with 110 kg soya seeds/ha)
Corn:	100 ml / 100 kg seeds (app. 30 ml/ha with 100.000 seeds or 30 kg seeds/ha)



In compliance with Council Regulation (EC) No 2018/848 on organic farming and listed for organic production in Germany.

Pack sizes:
5 l • 10 l • 200 l

PhytoGreen®-CerealMixes

STRAIGHT LIQUID INORGANIC MACRONUTRIENT FERTILISER IN SOLUTION WITH MICRONUTRIENTS

Composition:

PhytoGreen®-CerealMix: **10,7% Mn** (166 g/l manganese)**, 4,5% Zn** (70 g/l zinc)**, 1,5 % Cu** (23 g/l copper)**, 12,7% MgO** (197 g/l magnesium oxide)**, 1,8% N** (28 g/l carbamide N)

PhytoGreen®-CerealMixCarbo: 1,4% N (17 g/l nitrogen), **2,0 % MgO** (25 g/l magnesium oxide), **1,0% Cu** (12 g/l copper), **3,0% Mn** (38 g/l manganese), **2,0% Zn** (25 g/l zinc)

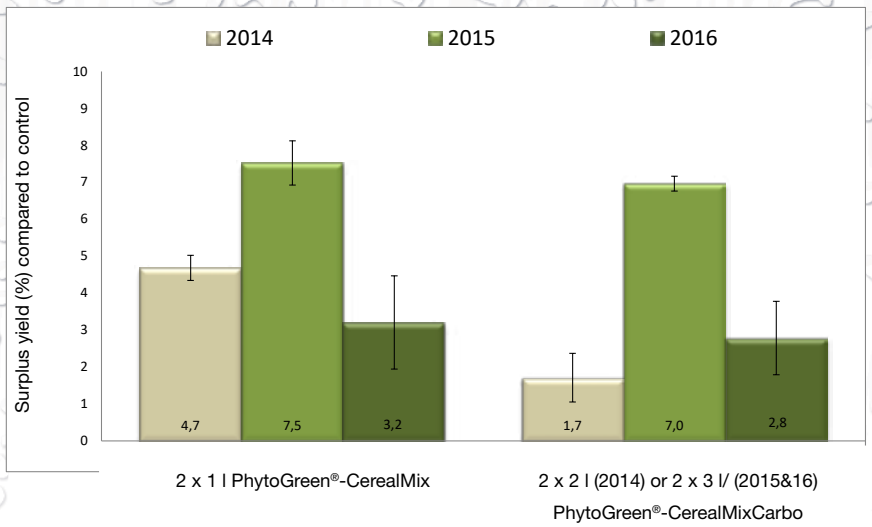
Mode of action and advantages:

- Optimized nutrient mixtures for cereals
- Highly concentrated as suspension or water soluble as Carboxylate
- Enhances winter hardiness, yield quality and protein content

Recommendations for use and application rates:

	PhytoGreen®-CerealMix	PhytoGreen®-CerealMixCarbo
Cereals (wheat, barley, triticale, rye, oats):	1-1,5 l/ ha from the beginning of vegetation in spring to 1-knot stage, and 1-2 l/ha before the end the tillering.	2-4 l/ha from the beginning of vegetation and 2-4 l/ha before the end the tillering.

Trial results winter wheat:



One year field trials with 4 replications:

	2014	2015	2016
Sowing date:	25.09.13	25.09.14	13.10.15
Variety:	Opal	Akteur	RGT Reform
Yield:	08.08.14	15.8.15	11.8.2016
Fertilisation/ plant protection	common practice		
Culture before:	Winter rape seed		
Application:	BBCH 31 & BBCH 37		

Technical details:

PhytoGreen®-CerealMix: Density: 1,58 kg/l, pH = 10
PhytoGreen®-CerealMix Carbo: Density: 1,16 kg/l; pH = 5,5

Miscibility:
The products can be mixed with usual plant protection products.

Pack sizes:
1 l • 5 l • 10 l • 200 l

PhytoGreen®-CornMixes

MICRO NUTRIENT MIXTURES

Composition:

PhytoGreen®-CornMix: **11% Mn** (170 g Manganese/l), **6% Zn** (93 g Zinc/l), **5% B** (77 g Boron/l)

PhytoGreen®-CornMix Carbo: **4,0% Mn** (50 g Manganese/l), **2,0% Zn** (25 g Zinc/l), **1,0% Cu** (12 g Copper/l), **0,3% B** (4 g Boron/l), **0,1% Mo** (1 g Molybdenum/l)

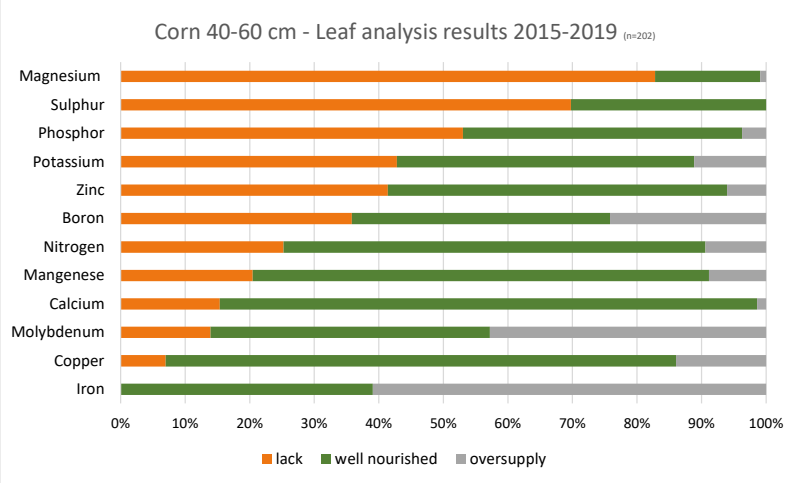
Mode of action and advantages:

- Optimized nutrient mixtures for corn
- Highly concentrated as suspension or water soluble as Carboxylate
- Enhances quick youth development and yield quality

Recommendations for use and application rates:

	PhytoGreen®-CornMix	PhytoGreen®-CornMixCarbo
Corn:	One foliar application with 2-3 l/ha or two foliar applications with 1-2 l/ha between 4- and 10-leaf-stage.	One foliar application with 4-6 l/ha or two foliar applications with 3 l/ha between 4- and 10-leaf-stage.

Results of leaf analysis:



The figure on the left shows the leaf analysis results of maize (height of 40-60 cm) of the Institute for Agricultural and Environmental Analysis from the last few years. Leaf analyzes enable a precise assessment of the nutritional status of crops.
Macronutrients can be applied as foliar fertilizers in addition to the supply via the soil in order to bridge short-term deficits. The micronutrients zinc, boron and manganese, which are most frequently missing, are contained in the maize mixes and can fully be provided via foliar fertilisation.

Technical details:

PhytoGreen®-CornMix: Density: 1,50 kg/l; pH = 8
PhytoGreen®-CornMix Carbo: Density: 1,24 kg/l; pH = 2,7

Raw materials for PhytoGreen®-CornMix are in compliance with Council Regulation (EC) No 2018/848 on organic farming.

Miscibility:
The products can be mixed with usual plant protection products.

Pack sizes:
10 ltr. · 200 ltr. · 1000 ltr.

PhytoGreen®-FruitColour

PK-FERTILISER-LIQUID

Composition:

5% P_2O_5 (67,5 g/l water soluble phosphorpentoxide),
20% K_2O (270 g/l water soluble potassium oxide)
complexed by low molucular weight carboxylic acids, pH-neutral

Mode of action and advantages:

- Induces fruit colour change (anthocyanins synthesis)
- Enhances fruit quality (ºBrix, sugar)
- P for healthy, well nourished and flavourful fruits
- pH-neutral and not aggressive to plants

PhytoGreen®-FruitColour is formulated with phosphorous and potassium complexed by low molecular weight carboxylic acids, which have the distinction of being highly reactive and extremely useful to link any molecule to be introduced into the plant and to be transported internally quickly and efficiently. It is especially useful during ripening and fruit fattening, enhancing at the same time fruit quality (ºBrix, sugar), anthocyanins synthesis (colour) and polyphenols polymerization (skin maturing). But its use is highly recommendable in any crop stage that requires the specified P-K balance. Free of chlorides,nitrates and sulfates.

Recommendations for use:

Application rate: PhytoGreen®-FruitColour has to be applied as leaf fertiliser with 2-3 l/ha with enough water to ensure a throughout coverage of the complete leaf area.

Pome and pip fruit;grapes, vegetables: 2 applications 15 and 7 days before harvest. For pome and pip fruits repeart application directly after the first harvest.

Strawberries: 2 applications 8 and 4 days before beginning of harvest and 1 applications after first harvest.

Technical details:

Density: 1,35 kg/l, pH = 6,5

Miscibility:
PhytoGreen®-FruitColour can be mixed with usual plant protection products.

Pack sizes:
1 ltr. • 10 ltr. • 200 ltr. • 1000 ltr.

PhytoGreen®-FruitCombi

Straight liquid inorganic macronutrient fertiliser in solution N (Ca-Mg) 10 (10-1) with micronutrients

Composition:

10,0% N (150 g total nitrogen/l equivalent to 140 g/l Nitrate-N + 10 g/l Ammonium-N)
10,0% Ca (150 g/l water soluble Calcium)
1,1% Mg (17 g/l water soluble Magnesium), **0,05% B** (700 mg water soluble Boron/l),
0,50% Mn (7,6 g water soluble Manganese/l), **0,02% Zn** (300 mg water soluble Zinc/l)

Mode of action and advantages:

- Special formulation for fruit growing
- Improves fruit quality
- Supplies calcium, magnesium, boron, manganese and zinc

Recommendations for use and application rates:

Pip fruit:	As soon as leaf area is sufficient, apply 2-5 l/ha as foliar application. After blooming until harvest foliar applications every 10-14 days with 5-10 l/ha.
Berries:	Several foliar applications with 2-6 l/ha from fruit blooming until harvest in at least 500 l water/ha.
Field vegetables and potatoes:	As soon as leaf area is sufficient, apply 2,5-5 l/ha every 10-14 days in at least 200 l water/ha.

Technical details:

Density: 1,5 kg/l, pH = 2,1

Miscibility: PhytoGreen®-FruitCombi can be mixed with usual plant protection products. However, since it is not possible to foresee all instances that may occur in practice it is in any case recommended to perform a trial first mixing the products intended to be used.

Pack sizes:
1 l • 10 l • 200 l • 1000 l

PhytoGreen®-PotatoMix

MICRO NUTRIENT MIXTURE

Composition:

17,6% Mn (300 g Manganese/l), **3,5% Zn** (60 g Zinc/l), **5,8% Cu** (100 g Copper/l), **2,6% MgO** (45 g Magnesiumoxide/l)

Mode of action and advantages:

- high concentrated micro nutrient mixture (micronised supension)
- for foliar application to support plant health
- very good miscibility with plant protection products
- Optimized nutrient mixture for potatoes

Recommendations for use and application rates:

Foliar fertiliser to supply nutrients.

Application rate:
Potato: 2-3 applications as soon as foliage has developped sufficiently with 2 l/ha every 8-14 days.
Other arable crops: 0,5-1 l/ha from 4-leave-stage on. If necessary, repeat treatment in intervals of 10-14 days.

Application:
Application with 200-400 l water/ha each.
To avoid clogging, nozzles should have a mesh size of at least 0.3 mm and the nozzle filters a maximum of 50 mesh. After application, immediately rinse out all lines and containers thoroughly with plenty of water.

Technical details:

Density: 1,7 kg/l; pH = 8-11

Miscibility: PhytoGreen®-PotatoMix can be mixed with usual plant protection products.

Pack sizes:
10 ltr. · 200 ltr. · 1000 ltr.

PhytoGreen®-RapeseedMixes

COMPOUND LIQUID INORGANIC MACRONUTRIENT FERTILISER IN SOLUTION OR IN SUSPENSION WITH MICRONUTRIENTS

Composition:

PhytoGreen®-RapeseedMix: **4,8% Mn** (74 g Mangan/l), **4,1% B** (63 g Bor/l), **0,5% Mo** (8 g Molybdän/l), **9,0% CaO** (139 g Calciumoxid/l), **9,2% S** (142 g Schwefel/l)

PhytoGreen®-RapeseedMix Carbo: 2,0% Mn (22 g Mangan/l), **0,5% B** (6 g Bor/l), **0,13% Mo** (1 g Molybdän/l) **2,0% MgO** (22 g Magnesiumoxid/l), **2,8% S** (32 g Schwefel/l)

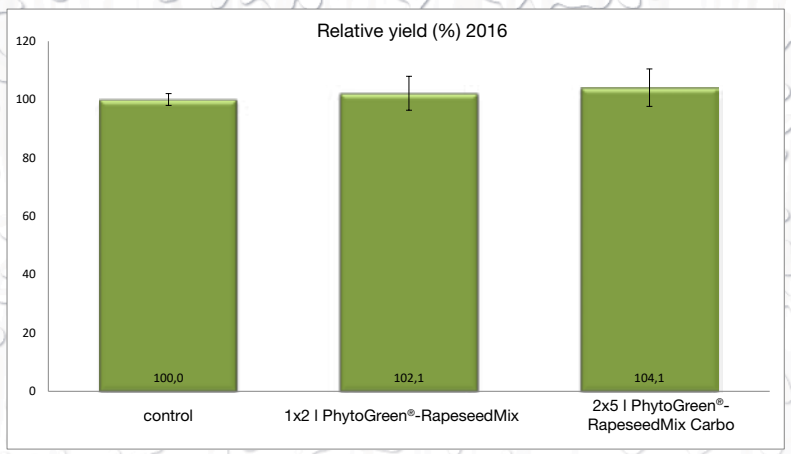
Mode of action and advantages:

- Optimized nutrient mixtures for rape (Brassica napus)
- Enhance winter hardiness
- For uniform blooming and ripening
- Highly concentrated as suspension or water soluble as Carboxylate

Recommendations for use and application rates:

	PhytoGreen®-RapeseedMix	PhytoGreen®-RapeseedMix Carbo
Rapeseed:	One foliar application in autumn with 2-3 l/ha from 4-leaf-stage on and/ or one foliar application with 2-3 l/ha before blooming.	One foliar application in autumn with 5-7 l/ha from 4-leaf-stage on and/ or one foliar application with 5-7 l/ha before blooming.

Trial results:



One year field trial with 4 replications:

Sowing date:	27.8.2015
Variety	KWS Gordon
Yield:	24.07.16
Fertilisation/plant protection	common practice
Culture before:	Winter wheat
Application:	BBCH 35 / BBCH 51

Technical details:

PhytoGreen®-RapeseedMix: Density: 1,50 kg/l; pH = 9
PhytoGreen®-RapeseedMix Carbo: Density: 1,15 kg/l; pH = 5

Raw materials for PhytoGreen®-RapeseedMix are in compliance with Council Regulation (EC) No 2018/848 on organic farming.

Miscibility: PhytoGreen®-RapeseedMixes can be mixed with usual plant protection products.

Pack sizes:
10 ltr. · 200 ltr. · 1000 ltr.

PhytoGreen®-CitrusMix

STRAIGTH LIQUID INORGANIC MACRONUTRIENT FERTILISER IN SOLUTION WITH MICRONUTRIENTS

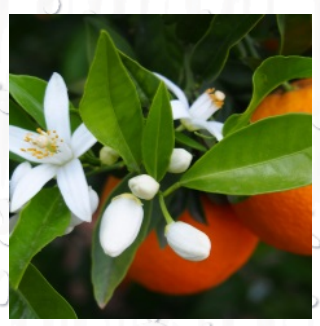
Composition:

5,5% Zn (70g zinc/l out of zinc oxide)
4,6% Mn (60g manganese/l out of Mn-carbonate)
1,6% B (20g boron/l out of borethanolamine)
0,8% Mo (10g molybdenum/l out of Na-molybdate)
4,7 % N (60 g ureic nitrogen/l)

Mode of action and advantages:

A suspension concentrate formulation for foliar application to Citrus crops.

PhytoGreen®-CitrusMix contains a carefully balanced blend of manganese, zinc, boron and molybdenum with ureic nitrogen, specifically formulated to meet the nutrient needs of citrus during the different growth stages.



Recommendations for use and application rates:

Apply as a foliar spray 2.5 – 3.5 liters/ha in at least 200 liters/ha water depending on the degree of deficiency. The 1st application starts on spring shoots before flowering. Apply as early in the growing season as possible providing there is adequate leaf cover. Repeat the application on summer and autumn shoots with the same dosage rate.

Avoid spraying during very strong sunlight, in temperatures above 25°C or when the crop is suffering from drought stress. Apply on dry leaves and at least two hours before irrigation or rain.

Shake the container well before opening and use. Half fill the sprayer tank with clean water. Begin agitation and add the required quantity of Citrus Mix. Add the rest of the water and apply without delay. Maintain agitation while travelling and during the spraying operation.

Technical details:

Density: 1,3, pH = 8

Miscibility: PhytoGreen®-CitrusMix can be mixed with usual plant protection products.

Pack sizes:
10 l • 200 l • 1000 l

PhytoGreen®-pH Regulators

pH-Regulator, Adhesive and Wetting agent (BVL-No. 028092-00)/
MANGANESE FERTILISER LIQUID

Composition:

PhytoGreen®-pH Total: 20% Carboxylic acids
CARBO-ECO pH: 20% Carboxylic acids, 3% Manganese

Mode of action and advantages:

- pH-Regulators ensure efficacy of plant protection products and leaf fertilisers
- Mixtures of natural carboxylic acids complex disruptive ions (like Ca-, Fe- or others) and deactivate them reliably (permanent effect compared to e.g. pure citric acid with short-term effects only)
- No health hazards (in contrast to boric acids: may damage fertility/ the unborn child)
- pH-Total: with excellent wetting characteristics additionally

Recommendations for use and application rates:

Very hard and/or ion-rich water:	As a general rule it`s enough to add 50 ml PhytoGreen®-pH Total/ Carbo-Eco pH to 100 l of application broth to lower a pH of 7 to 5. Dependant to the ion content and pH of the water used, the application rate can be increased up to 100 ml/100 l application broth. In case of very hard or ion-rich water, we recommend a water analysis in advance. Add PhytoGreen®-pH Total/ Carbo-Eco pH as first component to the full water amount needed for the appilation, stir well and check pH. Please take into account optimal pH range for the plant protection product which is going to be used!
Alkaline plant protection-products or leaf fertilisers:	Application as above, add plant protection/ leaf fertilizer and check pH again. Eventually correct with additional pH-Regulator / Carbo-Eco pH.

Effects of spray water quality on pesticides and foliar fertilisers:

The composition of the spray water influences the effectiveness of pesticides and foliar fertilisers. The measurement and setting of the correct pH value is particularly important In areas with a water hardness from 12 ° dH or 2.14 mmol total hardness / l . The magnesium, calcium, but also iron, manganese and other ions present in the water can react with the pesticides or foliar fertilizers and greatly reduce their efficacy.
When using PhytoGreen®-pH regulators, the carboxylic acids complex interfering ions and "switch them off". Ideally, the pH of a spray liquid should be between 5 and 5.5. This is ensured with a small addition of PhytoGreen®-pH regulators.

PhytoGreen®-pH Total also increases the uniform wetting and adhesion of an applied spray.

Technical details:

PhytoGreen®-pH Total: Density: 1,16 kg/l; pH = 1,4
CARBO-ECO pH: Density: 1,16 kg/l; pH = 1,7

Carbo-Eco pH iis in compliance with Council Regulation (EC) No 2018/848 and listed for organic production in Germany.

Miscibility:
PhytoGreen®-pH regulators should not be mixed with copper oxychloride or with sulfonyl carbamide.

Pack sizes:
10 l • 20 l • 200 l • 1000 l

Citrisol

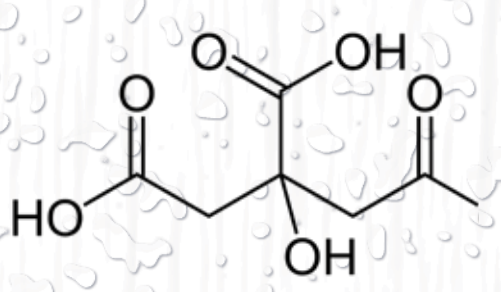
SOFTENING AGENT

Softening agent for spraying machines, hoses, nozzles etc..

The active ingredient of the product:

30% citric acid

Citric acid is a colourless, water soluble carboxylic acid most common in plant tissue. Citric acids remove limescale and chelates unwanted ions like Calcium in hard water.



Structural formula of citric acid ($C_6H_8O_7$)

Recommendations for use:

Citrisol as softening agent:
Citrisol dissolves chalky deposits caused by water evaporation. Citrisol can be used to remove limescale in machines, hoses, nozzles and anywhere else.

To descale directly use undiluted Citrisol. You can dilute Citrisol with water at a ration of 1:2 if an exposure time of at least one hour is possible.

Wear protective gloves!

Directions:

Pack sizes:
5 ltr. · 10 ltr. · 200 ltr. · 1000 ltr.

PhytoGreen®-PowerClean

Cleaning agent for spraying machines and other machinery.

The active ingredients of the product:

Anionic and ionic tensides, amines, corrosion inhibitors and flavor

In order to prevent sedimentary deposition and clogging of filter and nozzles, spraying machines should be cleaned after each use. PhytoGreen®-PowerClean steadily removes persistant residues of pesticides, fertilisers and other products.

The advantages:

- liquid
- suitable for all kind of machinery
- very intensive cleaning and degreasing
- provides a temporary anti-corrosion coating

Application rate:

The application rate depends on water hardness. The higher the mineral content of water, the more PhytoGreen®-PowerClean has to be used:

Jetting liquid	100 l	250 l	500 l	1000 l
Water hardness 1-2 (soft to middle, < 14°dH)	0,5 l	1,25 l	2,5 l	5 l
Water hardness 3 (hard, 14 - 21,3°dH)	0,75 l	1,875 l	3,75 l	7,5 l
Water hardness 4 (very hard, > 21,3 °dH)	1 l	2,5 l	5 l	10 l

PhytoGreen®-PowerClean gently removes oily and fatty substances without acting corrosive.

Application:

1. Fill tank at least with 20% of the needed water amount. Add 0,5-1 l PhytoGreen®-PowerClean/ 100 l water.

2. Pump jetting liquid into lines until all nozzles are getting rinsed. Rinse for 15 minutes while stirring. Only if residues are very persistent, leave jetting liquid for 24 hours.

3. Spray out complete jetting liquid via the nozzles.

4. Remove nozzles and filters afterwards. Clean seperately in a solution with 75 ml PhytoGreen®-PowerClean/ 10 l water.

Leaf- and Fruitanalysis

Please separate or copy next page

SAMPLING PROTOCOL AND LEAF-/ FRUIT ANALYSIS ORDER FORM

Send sample to:

Institut für Agrar- und Umweltanalytik
Querfurter Straße 9
D-06632 Freyburg/Unstrut

Tel.: +49 (0)34464/26582
e-mail: info@iau-freyburg.de
www.iau-freyburg.de

Customer information:

Customer name:	
Street:	
Postal Code/City/ Country:	
Tel./ Fax:	
E-mail:	
VAT-No.:	
Date of sampling:	
Free of charge advisory service by Phytosolution staff is wanted (yes/ no):	

Sample information:

Lab-No.[1]	Sample-No.	Plot name	Culture	development stage (EC) (mandatory field!)	desired analysis*							Comments (e.g.: good / bad)
					ME/TE[2]	S[3]	Se[3]	Co[3]	C/N[3]	Cl[3]		
					x							
					x							
					x							
					x							
					x							

[1] To be filled by the lab. * To be marked with a cross:
[2] ME: Main elements: N, Ca, K, P, Mg, Na; TE: Trace elements: Mn, Zn, Cu, B, Fe, Mo;
[3] S = Sulphur, Se = Selenium; Co = Cobalt, C/N = Carbon/Nitrogen; Cl = Chloride

The plant sample should be packed loosely, labeled clearly and easy to read, in solid paper bags (please do not use plastics). Send immediately to the testing laboratory with the accompanying analysis order form. The plant analysis allows a reliable diagnosis of the current nutritional status of the culture and is an important basis for any corrective fertilization. The analysis is limited to the study of green plants in the main growth phase. A conclusion on the soil conditions is often not possible because nutrient deficiency is often caused by ion antagonism, or adverse weather conditions.

City, Date Signature

EXAMPLE OF A LEAF ANALYSIS RESULT

Institut für Agrar- und Umweltanalytik

[Version 2.0 | 2015-04]

Akkreditiertes Agrarlabor für die Untersuchungen von Böden- Pflanzenteilen- Substraten

DAkkS Deutsche Akkreditierungsstelle D-PL-17606-01-00

Dipl. Ing. W. Bannach
Querfurter Str. 09, 06632 Freyburg/ Unstrut
Tel.: 034464/26582 Fax.: 034464/28130
e-mail: info@iau-freyburg.de
www.iau-freyburg.de

Auftraggeber:

Probenahmedatum: 28.06.2016
Probenehmer:
Probeneingang: 29.06.2016
Bearbeitungszeitraum: 29.06.2016 bis 01.07.2016
Berichtsdatum: 01.07.2016
Auftrags-/ Labor-Nr.: W4420003680
Probenbezeichnung: Corn
Schlag
ExtPrNr

Analytical Report

					Evaluation of nutritional status
Element	**Einheit**	**min***	**max***	**Measured**	A B C D E
N	% TS	3,50	5,00	**2,85**	
Ca	% TS	0,30	1,00	**0,32**	
P	% TS	0,35	0,60	**0,35**	
K	% TS	3,00	4,50	**2,86**	
Mg	% TS	0,25	0,50	**0,12**	
Na	% TS	0,01	2,00	**0,02**	
S	% TS	0,30	0,47	**0,19**	
B	ppm	7,0	15,0	**4,0**	
Mn	ppm	40,0	100	**57,1**	
Cu	ppm	7,00	15,0	**9,0**	
Zn	ppm	30,0	70,0	**17,6**	
Fe	ppm	50,0	150	**110,8**	
Mo	ppm	0,20	0,50	**0,4**	

A:	deficiency
B:	slight deficiency
C:	well nourished
D:	slight oversupply
E:	oversupply

40 bis 60 cm plant height, fully developed leaves
*min. value due to Bergmann, TLL , own threshold values
*max. value due to Bergmann, TLL , own threshold values
k.M. = smaller than threshold value
Analytical method: N total due to VDLUFA Methodenbuch II, 3.5.2.7
Micro- und Macro elements due to VDLUFA Methodenbuch VII. 2.2.2.6, 2. Teillfg.2003

PHYTO solution
... Plant nutrition with system

Sampling of leaves

Sampling should be distributed on the field at 20-30 different places. No samples taken, if treated with pesticides or nutrients in the previous 3-5 days. For plant analysis approximately 300-500 g fresh weight is required.

The following plant parts should be taken:

Plant	Stages of Development (EC)	Organ of Sampling
Cereals	tillering until boots swollen (28-45) possible; best timing during tillering (28-29)	complete plants cutted 5 cm above the ground
Oilseed rape	during development in the spring up to a plant height of 30-40 cm possble: bud small (53), bud medium (55), bud big (57), beginning of flowering (62), flowering (64)	youngest fully developed leaves without petiole
Maize	40-60 cm plant height (EC 33-39) or during flowering (EC 61-69)	fully developed medium leaves or corncob leaves
Lucerne (Alfalfa)	flower buds; beginning of flowering; full flowering	shoot of first emergence; from beginning of flowering upper shout part (15 cm)
Sunflower	beginning of flowering (61)	upper fully developed leaves
Potatoes	inflorescence emergence (51-59), beginning of flowering (60), end of flowering (69), tuber initiation (40)	youngest fully developed leaves
Sugar beet	8-10-leaf stage (18-19) until the end of August	youngest fully developed medium leaves without petiole
Grasses	beginning of flowering (60)	whole plant cuted 5 cm above ground
Asparagus	45-90 cm plant height (34-35)	fully developed upper fern
Wine	at 10% open flowers (61)	leaves opposite to the first flowerhood
Strawberries	beginning of flowering until full flowering (60-65)	youngest, fully developed leaves from the centre of the plant
Pomaceous / stone fruit	late July - early August	Leaves from the centre of this year's long shoots
Fir trees	spring until late summer	one to two years old needles of upper shoot

In other cultures, also upon the occurrence of deficiency- or excess-symptoms on individual leaves or plant parts, always total plants should be collected. Here, the minimum of sampling rate is 1-2 kg.

Imprint

PHYTOsolution is the agricultural product line of IAU-Service Werner Bannach

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