



Our goal
is healthy
crops

VitaFer[®]



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VitaFer mineral fertilizers in solution and innovative suspension form.

INNOVATION

VitaFer fertilizers are the only ones in Europe to contain an additive which is a naturally occurring steroid in plants, **'Epibrasinolide'**.

'Epibrasinolide' (EPIN) belongs to a recently discovered group of substances that occur naturally in small amounts in plants. Its primary function is to stimulate physiological processes, and correct levels have a decisive impact on the size and quality of the yields achieved.



The positive impact of EPIN:

- ✓ increases the physiological resistance of the plant
- ✓ improves plant resistance to the effects of drought and low temperatures
- ✓ reduces the absorption of heavy metals,
- ✓ increases the protein content of cereals,
- ✓ improves filling of maize cobs,
- ✓ inhibits sprouting of potato tubers when stored,
- ✓ improves quality and increases yield.

EPIN is ecologically safe and non-toxic to humans and animals and, when used in the fertilisation process, contributes significantly to its efficiency.

We present you with **27 VitaFer foliar fertilizers** in traditional solution form and as an innovative liquid suspension. They are distinguished by, among other things:

- ✓ the use of a modern, suspension formulation that combines the characteristics of crystalline and solution fertilizers,
- ✓ precise fragmentation of all ingredients down to the nano size, which increases the amount of ingredients absorbed by the plants,
- ✓ the addition of top-quality adjuvants, agents that improve the properties of the spray liquid,
- ✓ the addition of the naturally occurring steroid 'epibrasinolide' (EPIN), which occurs in small quantities in plants.

ADJUVANTS



Evaporation-suppressing agents

They form a layer that protects the microdroplets from evaporation before they reach the leaf surface. They ensure proper uptake and higher treatment efficiency.



Humectants

Reactivate the dried preparation on the leaf surface. Through this, the absorption time is longer and assimilation is better.



Adhesion enhancing agents

They cause optimum adhesion of the solution and prevent the product from being washed off the surface when it rains or plants are sprayed. Fertilizer losses are then kept to a minimum.



Surfactants

They guarantee an even distribution of the spray liquid. The improved leaf coverage results in better uptake and higher efficacy, as well as greater application safety.



Chelation with EDTA

It has a positive effect on the absorption of nutrients. Optimises the reaction of the spray liquid. Protects micronutrients from reacting with hard water.

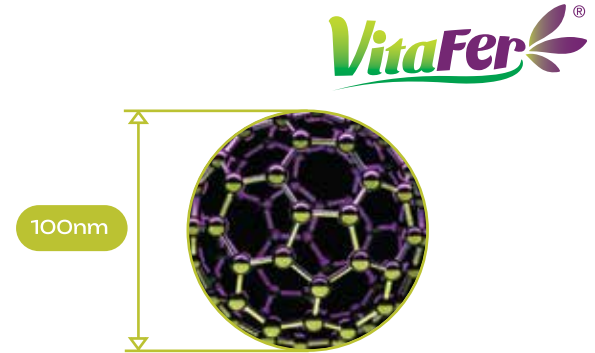


Nanoparticle technology

Nanoparticles are very small particles, ranging in size down to a hundred nanometres (1nm = 10⁻⁹m). They have much better biological, chemical and physical properties compared to the molecules found in traditional fertilizers.

They are distinguished by:

- ✓ much higher solubility in water,
- ✓ higher chemical activity,
- ✓ more effective absorption by plants



The uniform fragmentation of all ingredients influences:

- 01. Optimised absorption of macro-and micronutrients
- 02. Increased plant resistance
- 03. Increased plant mass growth
- 04. Increase in yield quality and quantity

New Solution

The suspension formulation is a new solution that combines positive properties of solution and crystalline fertilizers, among other things:

- ✓ high concentration of ingredients, as in crystalline fertilizers,
- ✓ high solubility, like in the case of solution fertilizers,
- ✓ easy to apply, like in the case of solution fertilizers,
- ✓ applicability once deficits have become apparent.

As a result, the efficiency of the treatments carried out is much higher, which translates into lower fertilization costs.

Fertilizers comparison

properties	crystalline fertilizers	traditional liquid fertilizers	liquid fertilizers VitaFer	suspension fertilizers VitaFer
miscibility with plant protection products	✓	✗	✓	✓
high concentration of ingredients	✓	✗	✗	✓
high plant safety	✗	✗	✓	✓
adjuvant content	✗	✗	✓	✓
solubility in hard water	✗	✗	✓	✓
high stability of the working fluid	✗	✗	✓	✓
chemically pure raw materials	✗	✗	✓	✓
better storage conditions	✗	✗	✗	✓

VitaFer[®]

Modern fertilizers



Possibility of mixing fertilizers



	Macro	Macro P	Macro K	Macro PK	KOMBI	MICRO	Mg	EXTRA Ca	Zn+B	EXTRA Zn	EXTRA Mn	Cu	Fe	Si	N	N+	P	K	S	Ca	B	Boron	Algi	Green	Premium	Power Phos
Macro		✓	✓	✓	✗	✓	✓	✗	✓	✗	✗	✓	✓	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Macro P	✓		✓	✗	✓	✓	✗	✗	✓	✗	✗	✓	✓	✗	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✗
Macro K	✓	✓		✓	✓	✓	✓	✓	✓	✗	✗	✓	✓	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✗
Macro PK	✓	✗	✓		✓	✓	✓	✓	✓	✗	✗	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗
KOMBI	✗	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓
MICRO	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
Mg	✓	✗	✓	✗	✓	✓		✗	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✗
EXTRA Ca	✗	✗	✓	✓	✓	✓	✗		✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗
Zn+B	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EXTRA Zn	✗	✗	✗	✗	✓	✓	✓	✓	✓		✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓
EXTRA Mn	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓		✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓
Cu	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fe	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✗	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓
Si	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗		✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	
N	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N+	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓		✓	✓	✓	✗	✓	✓	✓	✓	✓	✓
P	✓	✗	✓	✗	✓	✓	✗	✗	✓	✓	✓	✓	✓	✗	✓	✓		✓	✓	✓	✗	✓	✓	✓	✓	✗
K	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✗
S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Ca	✓	✗	✓	✓	✗	✓	✗	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✗
B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓	✗	✓	✗	✗	✓	✓	✓		✗	✓	✓	✗	✓
Boron	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✗	✓	✓	✓	✓	✓	✓	✓	✗		✓	✓	✓
Algi	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Green	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
Premium	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓
PowerPhos	✓	✗	✗	✗	✓	✓	✗	✗	✓	✓	✓	✓	✓	✗	✓	✓	✗	✗	✓	✗	✓	✓	✓	✓	✓	✓

* The solution should be used immediately after preparing. It is recommended to make a trial in small amount of water to check, if there is no unwanted reactions, e.g. caused by wrong quality of water.

✓ mixing possible

✗ mixing impossible

Fertilizers compositions



Suspension foliar fertilizers	Fertilizer	pH	Density	%	N	P ₂ O ₅	K ₂ O	MgO	SO ₃	CaO	B	Cu	Fe	Mn	Mo	Zn	SiO ₂
	VitaFer® Macro	5,0 – 6,0	1,37	m/v	19,18	19,18	19,18	-	-	-	0,048	0,061	0,137	0,009	0,009	0,068	-
	VitaFer® Macro P	5,0 – 6,0	1,36	m/v	13,60	27,20	13,60	-	-	-	0,048	0,061	0,136	0,020	0,0095	0,047	-
	VitaFer® Macro K	5,0 – 6,0	1,35	m/v	13,50	6,75	33,75	-	-	-	0,047	0,060	0,135	0,020	0,009	0,047	-
	VitaFer® Macro PK	5,0 – 6,0	1,24	m/v	9,92	19,84	19,84	-	-	-	0,043	0,056	0,124	0,0186	0,0088	0,043	-
	VitaFer® Kombi	6,0 – 7,5	1,38	m/v	27,60	-	20,70	2,76	-	-	0,034	0,076	0,138	0,076	0,00138	0,076	-
	VitaFer® Micro	5,0 – 7,0	1,45	m/v	11,60	-	14,00	4,20	7,00	-	0,049	0,770	1,40	2,10	0,014	1,40	-
	VitaFer® Mg	6,0 – 7,5	1,40	m/v	5,60	-	-	21,00	14,00	-	-	-	-	-	-	-	-
	VitaFer® Extra Ca	6,0 – 7,0	1,40	m/v	14,00	-	-	2,80	-	21,00	0,077	0,063	0,077	0,140	0,014	0,035	-
	VitaFer® Zn+B	6,0 – 7,0	1,37	m/v	3,90	-	-	-	-	-	5,480	-	-	-	-	5,480	-
	VitaFer® Extra Zn	3,5 – 4,5	1,30	m/v	6,50	-	2,60	-	7,15	-	-	-	-	-	-	19,50	-
	VitaFer® Extra Mn	3,5 – 4,5	1,64	m/v	6,56	-	3,28	-	22,96	-	-	-	-	27,880	-	-	-
	VitaFer® Cu	5,0 – 6,5	1,35	m/v	20,25	-	-	-	-	-	-	-	6,750	-	-	-	-
	VitaFer® Fe	6,0 – 7,0	1,40	m/v	7,00	-	5,60	-	21,42	-	-	-	15,40	-	-	-	-
VitaFer® Boron	6,5 – 7,2	1,32	m/v	10,56	13,20	-	-	-	-	9,240	0,066	0,132	0,066	0,00132	0,066	-	
VitaFer® Seeds	6,0 – 7,5	1,30	m/v	9,10	10,40	-	-	6,50	-	-	2,3	-	0,97	0,39	2,30	-	
VitaFer® Premium	4,0 – 5,0	1,65	m/v	8,25	-	-	2,64	14,85	-	-	7,095	-	-	0,99	-	-	

Liquid foliar fertilizer	Fertilizer	pH	Density	%	N	P ₂ O ₅	K ₂ O	MgO	SO ₃	CaO	B	Cu	Fe	Mn	Mo	Zn	SiO ₂
	VitaFer® N	6,5 – 7,5	1,18	m/v	14,16	4,72	7,00	-	-	-	0,013	0,009	-	0,016	0,00118	0,007	-
	VitaFer® N+	5,5 – 6,5	1,34	m/v	36,18	-	-	4,00	-	-	0,015	0,261	0,028	1,340	0,00134	0,008	-
	VitaFer® Si	12,5	1,28	m/v	5,12	-	20,48	-	-	-	-	-	-	-	-	-	33,28
	VitaFer® P	5,5 – 7,0	1,27	m/v	6,35	25,40	6,35	-	0,82	-	0,014	0,010	0,052	0,018	0,00127	0,008	-
	VitaFer® K	5,5 – 7,5	1,25	m/v	6,25	10,00	15,00	-	-	-	0,014	0,010	-	0,016	0,0012	0,007	-
	VitaFer® S	5,5 – 6,5	1,32	m/v	19,80	-	-	-	69,30	-	0,014	0,006	0,027	0,017	0,00132	0,006	-
	VitaFer® B	7,0 – 8,0	1,36	m/v	-	-	-	-	-	-	15,000	-	-	-	-	-	-

Biostimulating foliar fertilizers	Fertilizer	pH	Density	%	N	P ₂ O ₅	K ₂ O	MgO	SO ₃	CaO	B	Cu	Fe	Mn	Mo	Zn	SiO ₂	
	VitaFer® PowerPhos	5,0 – 6,0	1,36	m/v	-	39,44	24,48	-	-	-	-	-	-	-	-	-	-	-
	VitaFer® Alg ¹	4,5 – 6,0	1,23	m/v	3,07	-	2,83	-	-	-	3,690	-	-	0,980	-	0,560	-	
	VitaFer® Green ²	2,5 – 4,0	1,11	m/v	0,22	-	-	-	-	-	0,22	0,22	1,43	0,550	0,022	0,550	-	
VitaFer® Ca ³	5,0 – 6,0	1,35	m/v	0,67	-	-	-	-	-	20,25	-	-	-	0,670	-	0,670	-	

Support products	Fertilizer	pH	Density	%	N	P ₂ O ₅	K ₂ O	MgO	SO ₂	CaO	B	Cu	Fe	Mn	Mo	Zn	SiO ₂	
	VitaFer® Opti pH	2,0 – 3,0	1,12	m/v	3,36	19,04	-	-	-	-	-	-	-	-	-	-	-	-
	VitaFer® DropFor	Sorbitan monolaurate (E493): 50% ; Polyoxyethylene sorbitan monolaurate (E 432): 20% ; all active ingredients and other compounds contained in the formulation are certified food additives "E mark"																
VitaFer® Perfect Clean	Benzenesulfonic acid, ethanolamine alkyl derivative, 2-aminoethanol, etidronic acid, ethoxylated long chain alcohol (C10), 1-methoxy-2-propanol, sodium hydroxide																	

¹ Additionally, it contains an extract from sea algae Ascophyllum Nodosum, amino acids, vitamins, auxins, gibberellins and iodine, Minimum content of organic matter 35 %

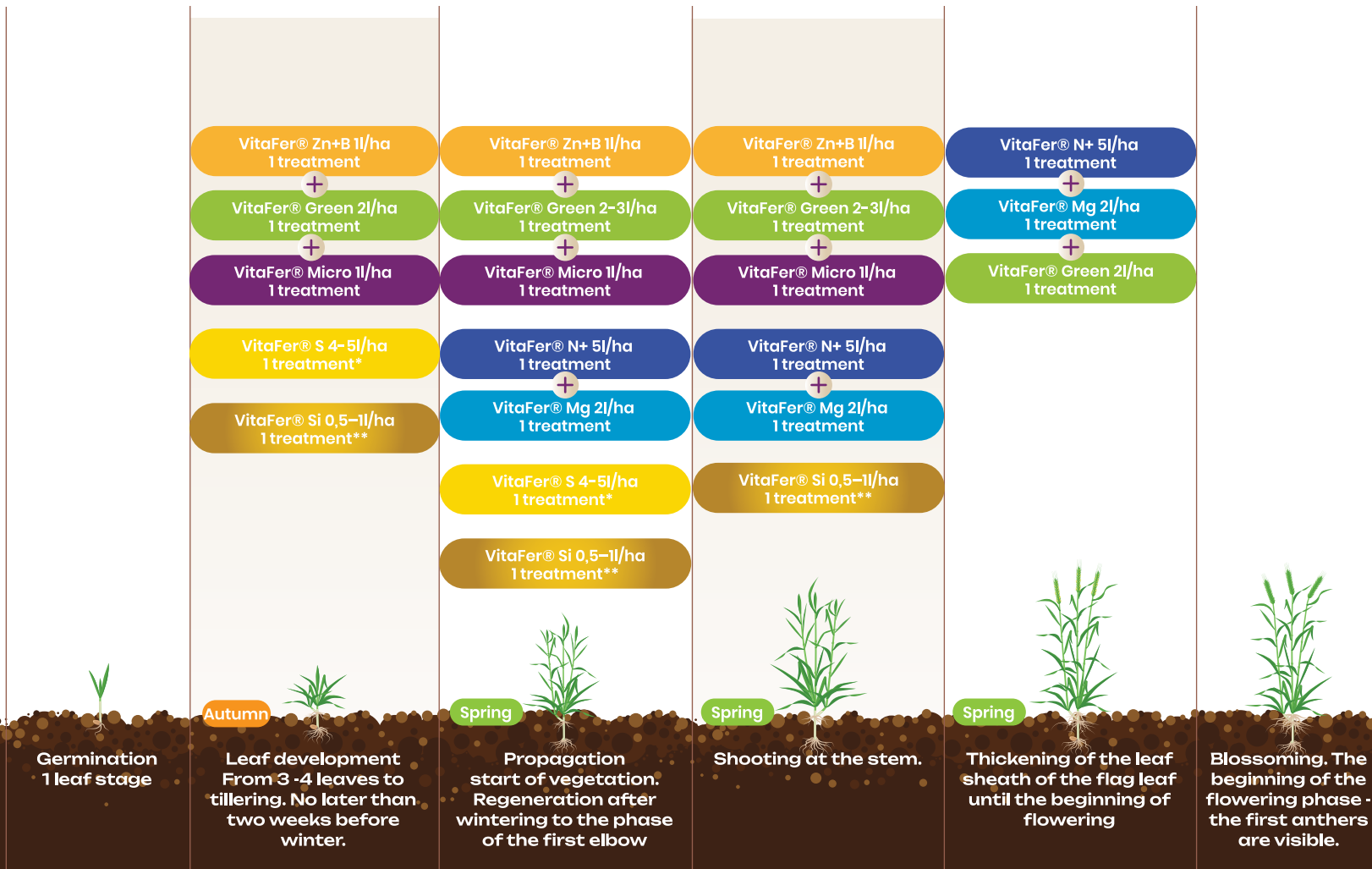
² Additionally, it contains an amino acid extract obtained by enzymatic hydrolysis, vitamins and natural plant bioregulators, Minimum content of organic matter 70 %

³ Additionally, it contains an amino acid extract obtained by enzymatic hydrolysis, vitamins and the most absorbable form of calcium, Minimum content of organic matter 25 %



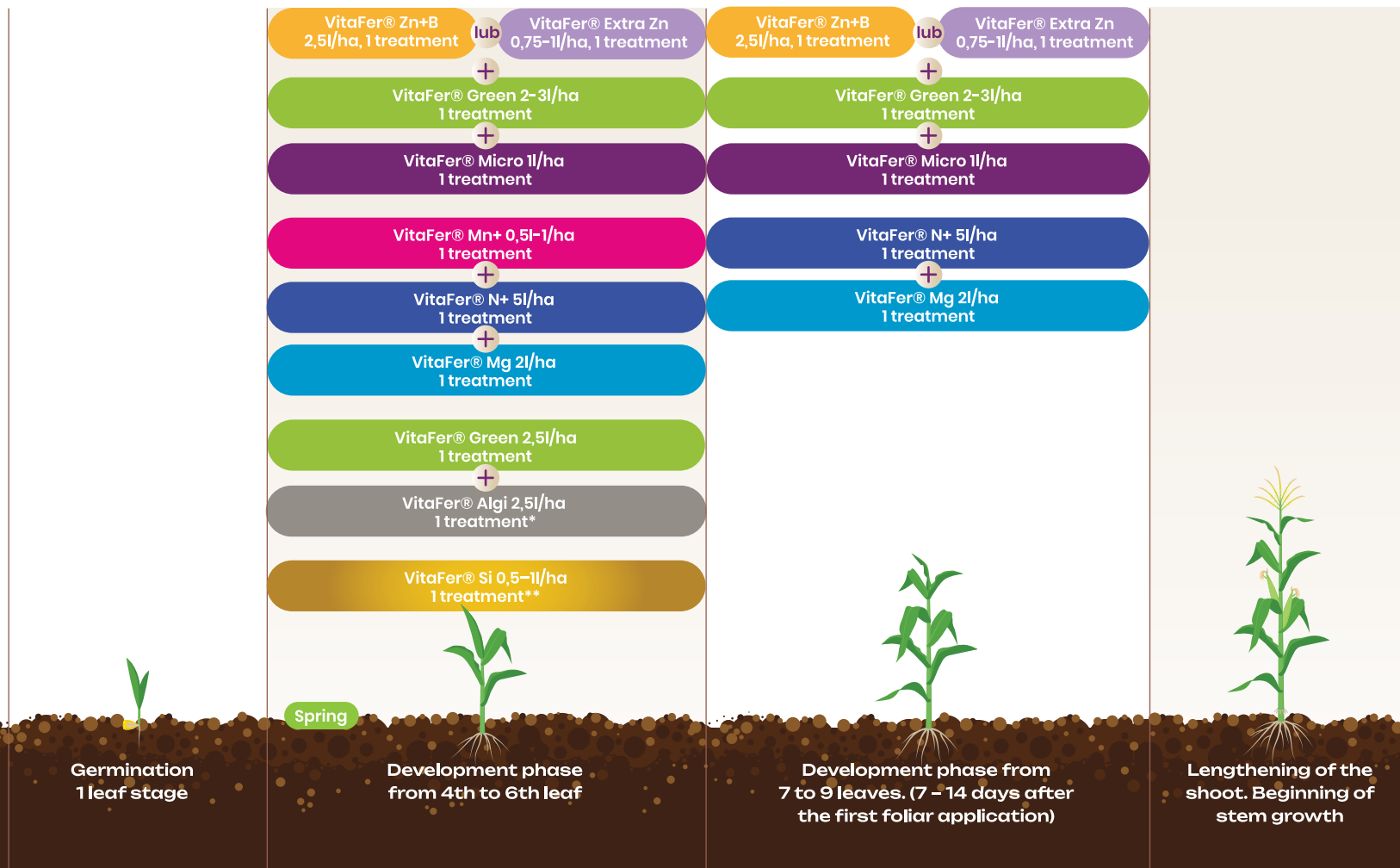
Fertilization programs

Fertilization program for winter cereals



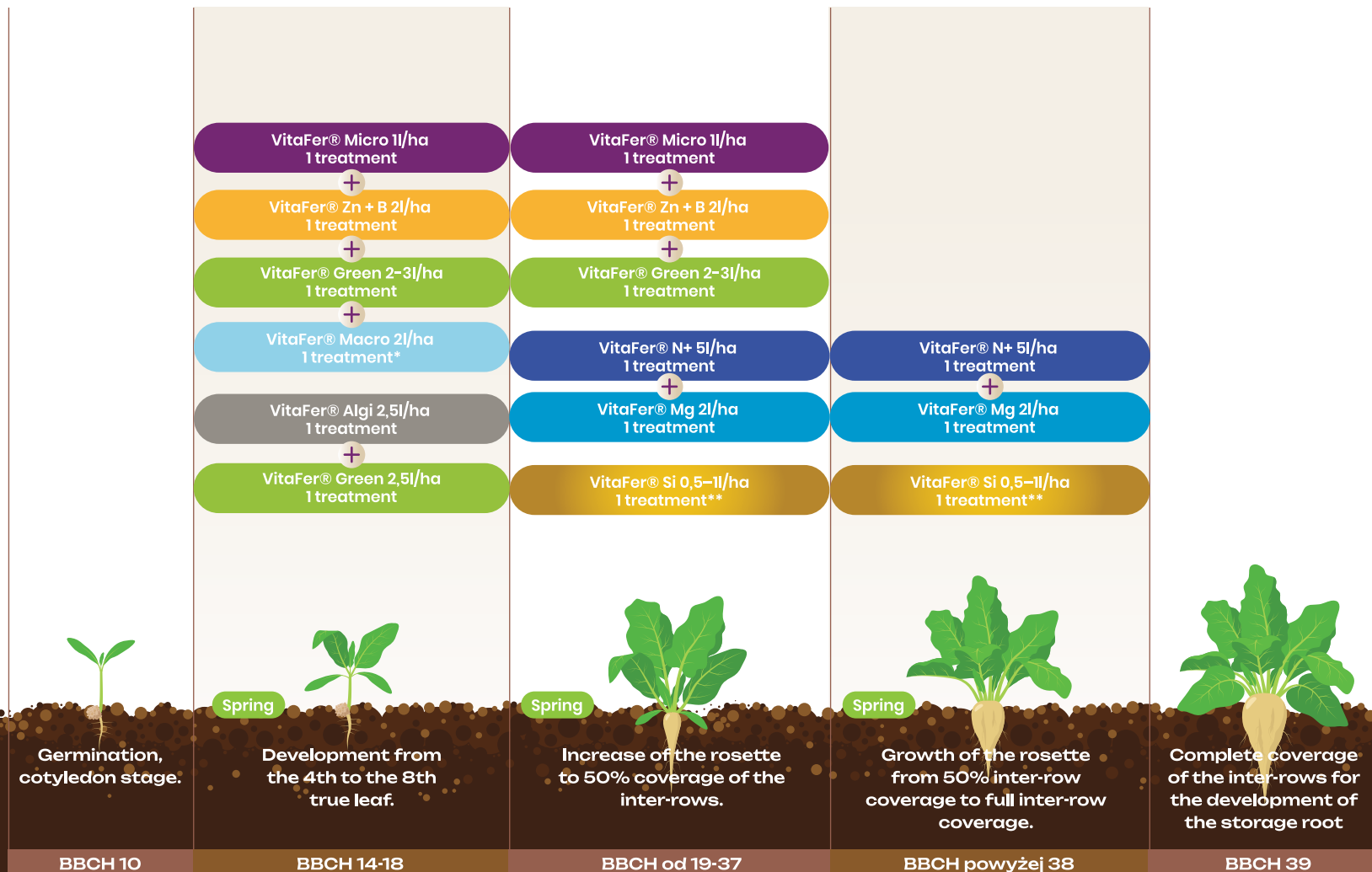
* Only winter barley and winter wheat. ** Biostimulation. Do not combine with other preparations.

Corn fertilization program



* Biostimulating treatment before expected frosts (perform 48-24 hours before cooling down) or if regeneration is necessary after frosts. One to two treatments every 7-14 days
 ** Biostimulation. Do not combine with other preparations.

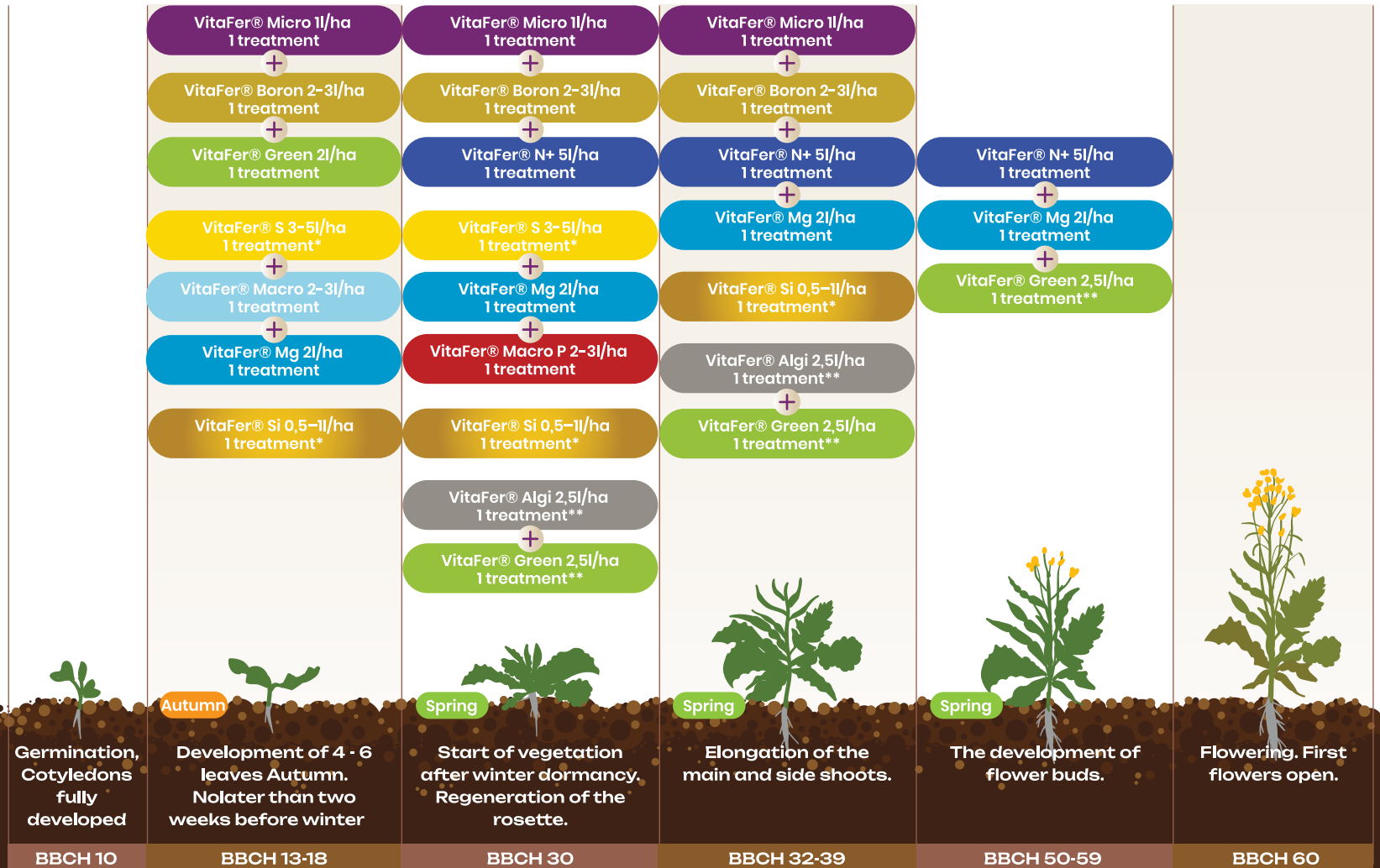
White beet fertilization program



* Biostimulating treatment before expected frosts. (Perform 48-24 hours before expected cooling) or in case of necessity of regeneration after frost. One to two treatments every 7-14 days

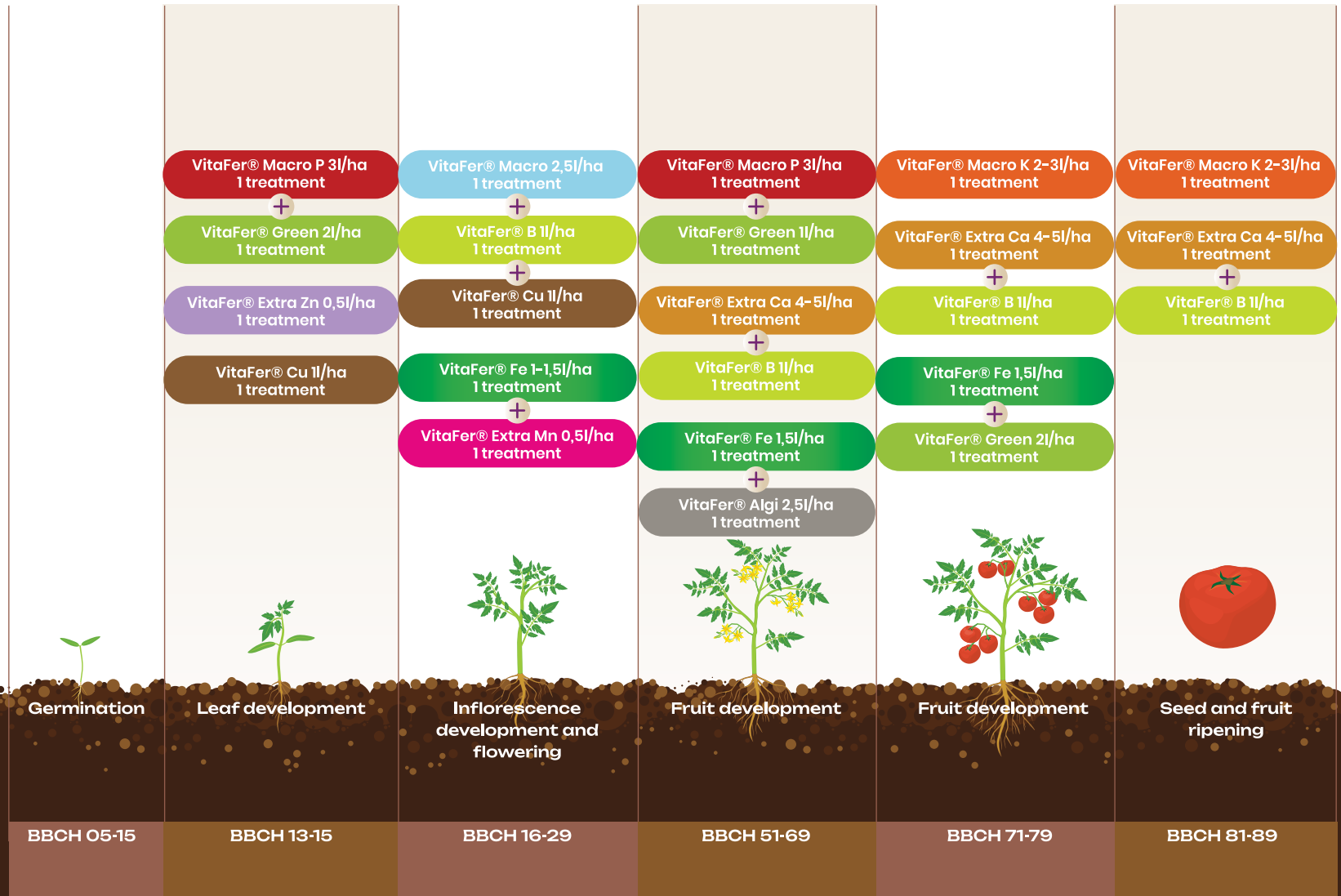
** Biostimulation and protection against beet fungal disease. Do not combine with other preparations.

Fertilization program for winter oilseed rape



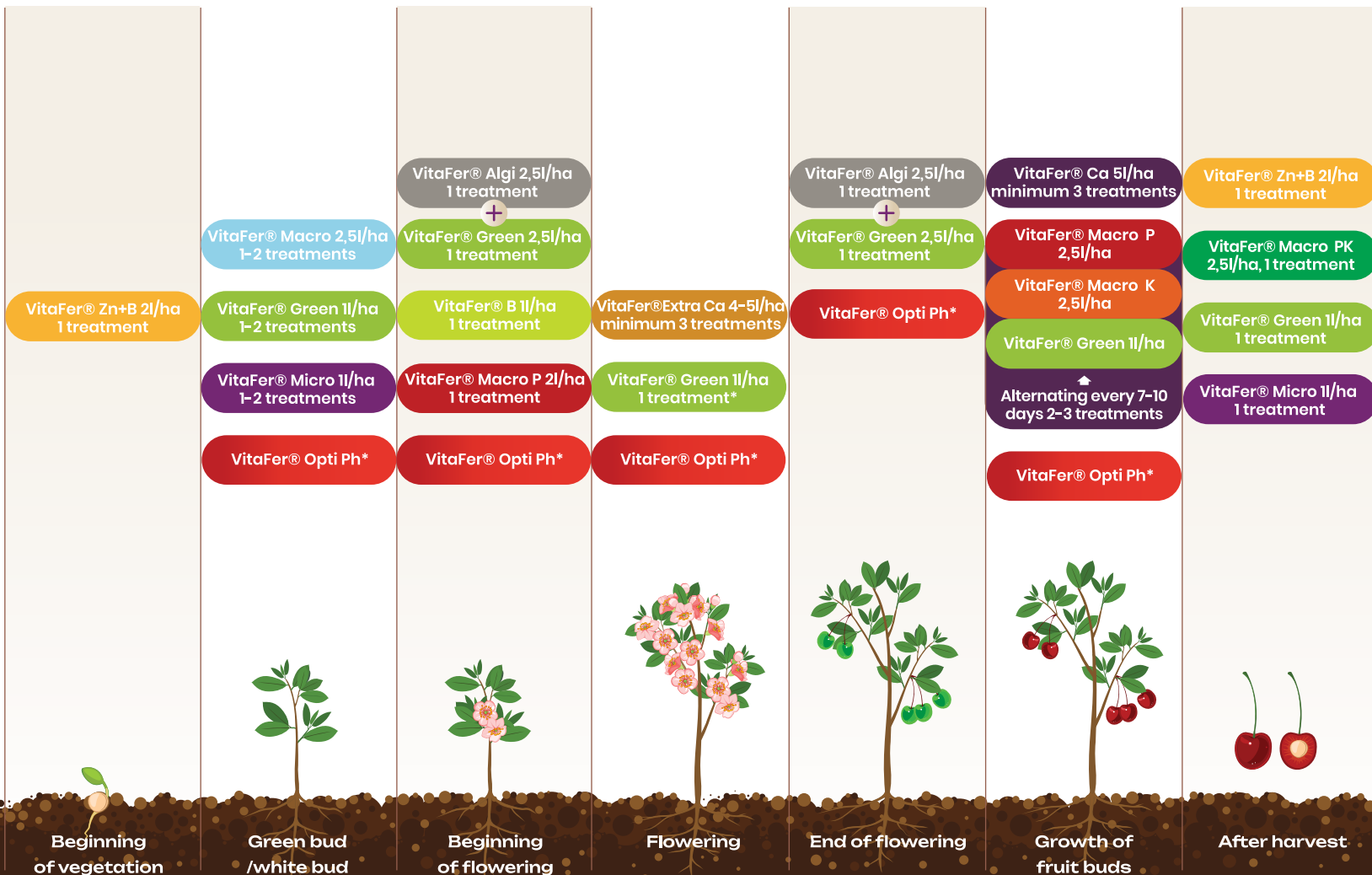
* Biostimulation. Do not combine with other preparations.
 ** Biostimulation affecting the durability of the psoriasis against cracking. Work until the green bud phase.

Fertilization program for tomatoes, peppers and eggplant.

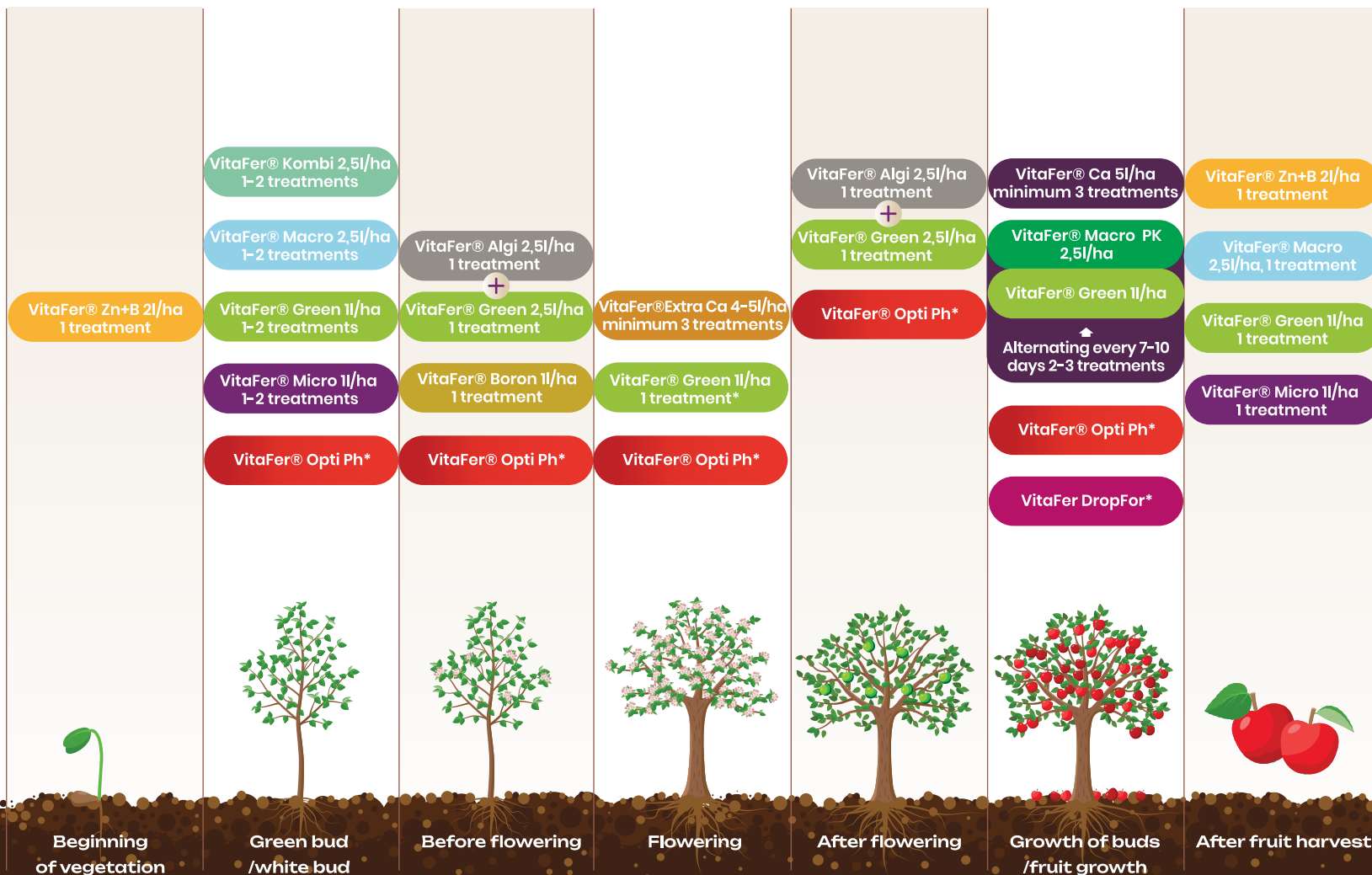




Fertilization program for stone crops:

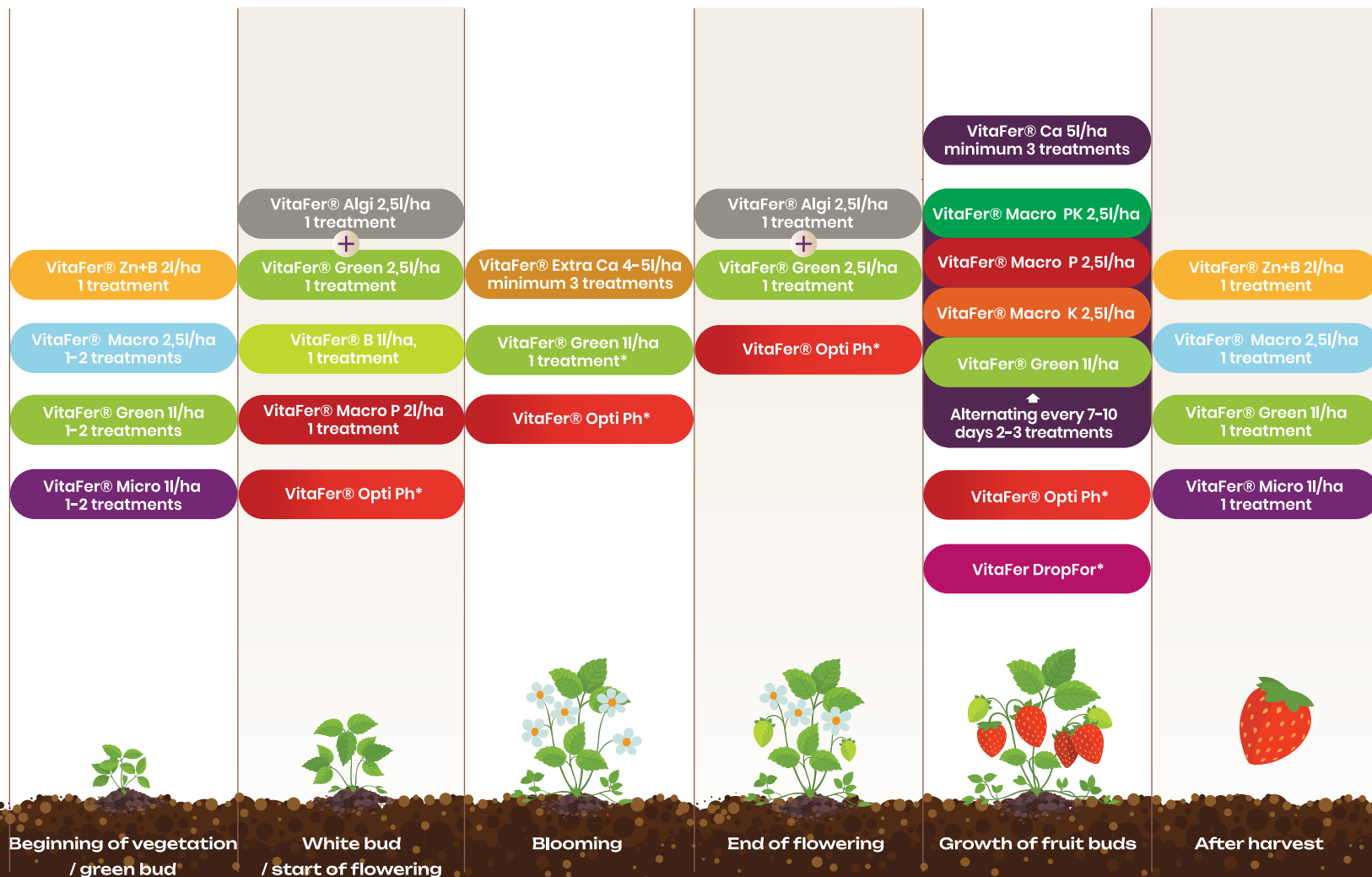


Pome crop fertilization program:



*Use for treatments with plant protection products. Dosage VitaFer® Opti Ph page 55, VitaFer® DropFor page 54

Fertilization program for strawberry and other berry crops: _____



** Use for treatments with plant protection products. Dosage VitaFer® Opti Ph page 55, VitaFer® DropFor page 54

**SUSPENSION FOLIAR
FERTILIZERS**

VitaFer[®]



VitaFer MACRO

Mineral fertilizer for the intervention and preventive supply of phosphorus, nitrogen and potassium.

19,18%N + 19,18% P₂O₅ + 19,18% K₂O + 0,048%B + 0,061% Cu + 0,137% Fe + 0,009% Mn + 0,009% Mo + 0,068% Zn

%(m/v)

Density 1,37 kg/l

pH 5,0 – 6,0

The role of nitrogen in crops:

- building material for proteins and nucleic acids
- ensures proper development of plants: roots and above ground parts
- important constituent of chlorophyll, vitamins, hormones and DNA
- has a beneficial effect on optimum vegetation length: flowering and yielding
- improves water management in plants, increases drought tolerance.
- stimulates the development of the root system and increases the absorption of nutrients from the soil

The role of potassium in crops:

- is responsible for the quantity and quality of the yield
- participates in the regulation of nitrogen uptake
- is responsible for the water management in plants
- contributes to building resilience to drought conditions
- promotes the development of the root system and the uptake of other nutrients from the soil
- increases the frost resistance of plants
- is involved in the formation of starches and sugars.

The role of phosphorus in plants:

- improved root system development and increased uptake of nutrients from the soil
- improved quality parameters of the crop, especially starch, sucrose, proteins and vitamins
- improves photosynthesis and cell respiration parameters
- increases plant resistance to lodging, freezing
- reduces the negative effects of nitrogen over-fertilization

Nitrogen deficiencies result in:

- light green colour of leaves and plant stems in extreme deficiency turning into yellow discolouration of leaves
- abnormal, reduced plant habit
- poorly formed fruit, pods or ears
- accelerated maturation.
- increased susceptibility to fungal diseases and the effects of insect feeding.

Potassium deficiencies result in:

- inability to defend themselves against drought stress: plants lose their turgor and start to wilt
- yellowing of leaves progressing from the edges. Over time, the leaves wilt, turn brown and die.
- the plants are smaller, with a shorter and more flaccid stem.
- delayed flowering, flowers are noticeably smaller
- limited ear and cob formation, poor grain pouring

Phosphorus deficiencies result in:

- slower growth of crops, dwarfing
- purple-pink colouring of stems and lower leaves
- slowing down of root growth
- reduction in foliation, weaker tillering
- greater susceptibility to fungal diseases and pest attack
- reduced yields of poorer quality

VitaFer MACRO



Recommendations for use:

- is suitable for intervention and preventive supplementation of nitrogen, phosphorus and potassium deficiencies as soon as they become apparent.
- guarantees balanced and comprehensive plant nutrition
- supplies plants with phosphorus during periods when the natural uptake of phosphorus by the root system is impaired, e.g. by low soil temperatures.
- quickly compensates for nutrient deficiencies
- improves water management in plants and increases their tolerance to drought
- increases the tolerance of plants to stresses related to the development of fungal diseases or pest damage.
- stimulates the development of the root system and increases the absorption of nutrients from the soil.

Dosage and timing of application:

Crop	Dose (l/ha)	Number and timing of treatments
Sugar beet	2	2 treatments: from the 4-6 leaf stage to 100% canopy closure (BBCH 16-39)
Fruit trees	3-5	Several treatments: particularly recommended when drought occurs and macroelements cannot be taken up from the soil. Also recommended in the green bud stage and after flowering.
Berries	3-5	Several treatments: during drought and lack of macroelement uptake by the soil and during intensive plant growth
Maize	3	2 treatments: 3-5 leaf stage (BBCH 15-18); 2 weeks after the first treatment
Winter oilseed rape	3	2 treatments: from the beginning of the elongation of the main shoot immediately after winter rest until the beginning of the development of the flower buds (BBCH 30-52)
Field vegetables	3	3 treatments: from the 2nd week after emergence/planting every 12-14 days
Spring cereals	3	2 treatments: from the 3-4 leaf stage to the beginning of earing (BBCH 13-50), at an interval of 12-14 days
Winter cereals	3	2 treatments: after winter rest until the beginning of earing (BBCH 31-50), at an interval of 12-14 days
Potatoes	3	2-3 treatments: from the shoot formation stage until 40% of the final weight of the tubers is reached (BBCH 35-73), at intervals of 12-14 days

Fertigation - concentration up to 0,3%

Attention: The fertilizer must not be mixed with calcium fertilizers and magnesium sulphate

VitaFer[®]
MACRO

VitaFer MACRO P

Mineral fertilizer for the intervention and preventive supply of phosphorus, nitrogen and potassium.

13,6% N + 27,2% P₂O₅ + 13,6% K₂O + 0,048%B + 0,061% Cu + 0,136% Fe + 0,02% Mn + 0,0095% Mo + 0,047% Zn

%(m/v)

Density 1,36 kg/l

pH 5,0 – 6,0



The role of phosphorus in plants:

- improved root system development and increased uptake of nutrients from the soil
- improved quality parameters of the crop, especially starch, sucrose, proteins and vitamins
- improves photosynthesis and cell respiration parameters
- increases plant resistance to lodging, freezing
- reduces the negative effects of nitrogen over-fertilization

Phosphorus deficiencies result in:

- slower growth of crops, dwarfing
- purple-pink colouring of stems and lower leaves
- slowing down of root growth
- reduction in foliation, weaker tillering
- greater susceptibility to fungal diseases and pest attack
- reduced yields of poorer quality

Recommendations for use:

- is suitable for intervention and preventive supplementation of phosphorus deficiencies as soon as they become apparent.
- guarantees balanced and comprehensive plant nutrition
- supplies plants with phosphorus during periods when the natural uptake of phosphorus by the root system is impaired, e.g. by low soil temperatures.
- quickly compensates for nutrient deficiencies
- improves water management in plants and increases their tolerance to drought
- increases the tolerance of plants to stresses related to the development of fungal diseases or pest damage.
- stimulates the development of the root system and increases the absorption of nutrients from the soil.

Dosage and timing of application:

Crop	Dose (l/ha)	Number and timing of treatments
Sugar beet	2	2-3 treatments: From the 4-6 leaf stage to 100% canopy closure (BBCH 16-39)
Fruit trees	5	Several treatments: Particularly recommended when drought occurs and macrolelements cannot be taken up from the soil. Also recommended in the green bud stage and after flowering.
Berries	3-5	Several treatments: During drought and lack of macrolelement uptake by the soil and during intensive plant growth
Maize	3	2 treatments: first at the 3-5 leaf stage (BBCH 15-18); 14 days after the first treatment
Winter oilseed rape	3	3 treatments: In autumn 2 treatments: the first from the 4-6 leaf stage, the next up to two weeks before the end of autumn vegetation (BBCH 13-25), in spring 1 treatment from the start of vegetation, the next up to the beginning of flowering (BBCH 30-51) every 12-14 days.
Field vegetables	3	3 treatments: From the 2nd week after emergence/planting every 12 - 14 days
Spring cereals	3	1 treatment: From the 3-4 leaf stage to the start of earing (BBCH 13-50)
Winter cereals	3	2 treatments: In autumn 1 treatment from the 3-4 leaf stage to 10-14 days before winter rest (BBCH 13-25), in spring 1 treatment from growth resumption to the beginning of the earing stage (BBCH 31-50)
Potatoes	2-3	2-3 treatments: From the shoot formation stage until 40% of the final weight of the tubers is reached (BBCH 35-73), at intervals of 12-14 days

Attention: The fertiliser must not be mixed with calcium fertilizers and magnesium sulphate
Fertigation up to 0.3% concentration

VitaFer[®]
MACRO P

VitaFer MACRO K

Mineral fertilizer for the intervention and preventive supply of potassium, nitrogen and phosphorus.

13,5% N + 6,75% P₂O₅ + 33,75% K₂O + 0,047% B + 0,06% Cu + 0,135% Fe + 0,02% Mn + 0,009% Mo + 0,047% Zn

%(m/v)

Density 1,35 kg/l

pH 5,0 – 6,0



The role of potassium in crops:

- is responsible for the quantity and quality of the yield
- participates in the regulation of nitrogen uptake
- is responsible for the water management in plants
- contributes to building resilience to drought conditions
- promotes the development of the root system and the uptake of other nutrients from the soil
- increases the frost resistance of plants
- is involved in the formation of starches and sugars.

Potassium deficiencies result in:

- inability to defend themselves against drought stress: plants lose their turgor and start to wilt
- yellowing of leaves progressing from the edges. Over time, the leaves wilt, turn brown and die.
- the plants are smaller, with a shorter and more flaccid stem.
- delayed flowering, flowers are noticeably smaller
- limited ear and cob formation, poor grain pouring

Recommendations for use

- in order to quickly replenish nutrient deficiencies, especially in times when the natural uptake by the root system is disrupted, e.g. by unfavourable weather conditions.
- to stimulate the development of the root system and aboveground biomass,
- to increase drought resistance by ensuring proper water management in the plant
- to increase disease resistance (e.g. potato blight),
- to ensure proper flower bud formation, flowering and fruiting,
- in order to increase the quantity and quality of the yield, improve the storability of, among other things, vegetables and fruit.

Dosage and timing of application

Crop	Dose (l/ha)	Number and timing of treatments
Sugar beet	2-3	2 treatments from the 4-6 leaf stage to 100% canopy closure (BBCH16-39)
Fruit trees	5	Several, particularly recommended when drought occurs and macroelements cannot be taken up from the soil. Also recommended in the green bud stage and after flowering.
Berries	3-5	Several, during drought and lack of macroelement uptake by the soil and during intensive plant growth
Maize	3	1 treatment in the rapid growth stage of 6-10 leaves - (BBCH 15-19)
Winter oilseed rape	2-3	2-3 treatments Autumn: first treatment from the 6-8 leaf stage (BBCH 16-25), spring: 1-2 treatments after winter rest, up to the beginning of flower bud development (BBCH 30-52)
Field vegetables	2-3	3 treatments first from the 4 leaf stage (BBCH 14-16), then every 14 days thereafter, to increase resistance to stress conditions
Spring cereals	3	1 treatment from the 3-4 leaf stage to the start of earing (BBCH 13-50)
Winter cereals	2-3	3 treatments in autumn: first treatment from 3-4 leaf stage (BBCH 13-25), in spring: two treatments after winter rest until the beginning of earing (BBCH 31-50)
Potatoes	2-3	3 treatments from the shoot formation stage until 40% of the final weight of the tubers is reached (BBCH 35-73), at intervals of 12-14 days

Note: The fertilizer must not be mixed with calcium fertilizers and magnesium sulphate

VitaFer
MACRO K

VitaFer MACRO PK

Mineral fertilizer for the intervention and preventive supply of phosphorus, nitrogen and potassium.

9,92% N + 19,84% P₂O₅ + 19,84% K₂O + 0,043% B + 0,056% Cu
+0,124% Fe +0,0186% Mn +0,0088% Mo + 0,043% Zn

%(m/v)

Density 1,24 kg/l

pH 5,0 – 6,0

The role of potassium in crops:

- is responsible for the quantity and quality of the yield
- participates in the regulation of nitrogen uptake
- is responsible for the water management in plants
- contributes to building resilience to drought conditions
- promotes the development of the root system and the uptake of other nutrients from the soil
- increases the frost resistance of plants
- is involved in the formation of starches and sugars.

The role of phosphorus in plants:

- improved root system development and increased uptake of nutrients from the soil
- improved quality parameters of the crop, especially starch, sucrose, proteins and vitamins
- improves photosynthesis and cell respiration parameters
- increases plant resistance to lodging, freezing
- reduces the negative effects of nitrogen over-fertilization.

Potassium deficiencies result in:

- inability to defend themselves against drought stress: plants lose their turgor and start to wilt
- yellowing of leaves progressing from the edges. Over time, the leaves wilt, turn brown and die.
- the plants are smaller, with a shorter and more flaccid stem.
- delayed flowering, flowers are noticeably smaller
- limited ear and cob formation, poor grain pouring

Phosphorus deficiencies result in:

- slower growth of crops, dwarfing
- purple-pink colouring of stems and lower leaves
- slowing down of root growth
- reduction in foliation, weaker tillering
- greater susceptibility to fungal diseases and pest attack
- reduced yields of poorer quality

VitaFer[®]
MACRO PK

VitaFer MACRO PK



Recommendations for use:

- is suitable for intervention and preventive supplementation of phosphorus and potassium deficiencies as soon as they become apparent.
- guarantees balanced and comprehensive plant nutrition
- supplies plants with phosphorus during periods when the natural uptake of phosphorus by the root system is impaired, e.g. by low soil temperatures.
- quickly compensates for nutrient deficiencies
- improves water management in plants and increases their tolerance to drought
- increases the tolerance of plants to stresses related to the development of fungal diseases or pest damage.
- stimulates the development of the root system and increases the absorption of nutrients from the soil.

Dosage and timing of application:

Crop	Dose (l/ha)	Number and timing of treatments
Sugar beet	2-3	2-3 treatments: from the 4-6 leaf stage to 100% canopy closure (BBCH16-39)
Fruit trees	3-5	Several treatments: Particularly recommended when drought occurs and macroelements cannot be taken up from the soil. Also recommended in the green bud stage and after flowering.
Berries	3-5	Several treatments: During drought and lack of macroelement uptake by the soil and during intensive plant growth.
Maize	2-3	1 treatment: In the rapid growth stage (6-10 leaves)- (BBCH 15-19)
Winter oilseed rape	2-3	2 treatments: In autumn, first treatment from the 4-6 leaf stage, followed by 2 weeks before the end of autumn vegetation (BBCH 13-25), in spring, first treatment from the start of vegetation to the beginning of flowering (BBCH 30-51)
Field vegetables	2-3	3 treatments: First from the 4 leaf stage (BBCH 14-16), then every 14 days thereafter, to increase resistance to stress conditions
Spring cereals	3	2 treatments: From the 3-4 leaf stage to the start of earing (BBCH 13-50)
Winter cereals	2-3	2 treatments: In autumn first treatment from 3-4 leaf stage (BBCH 13-25), in spring 2 treatments from the start of vegetation to the beginning of earing (BBCH 31-50)
Potatoes	2-3	2-3 treatments: From the shoot formation stage until 40% of the final weight of the tubers is reached (BBCH 35-73), at intervals of 12-14 days

Attention: The fertiliser must not be mixed with calcium fertilizers and magnesium sulphate
Fertilization – not to exceed a concentration of 0.3%

VitaFer[®]
MACRO PK

VitaFer KOMBI

Mineral fertilizer for the intervention and preventive supply of potassium, magnesium, nitrogen and sulphur

27,6% N + 20,7% K₂O + 2,76% MgO + 0,034% B + 0,076% Cu
+0,138% Fe + 0,076% Mn + 0,00138% Mo +0,076% Zn

%(m/v)

Density 1,38 kg/l

pH 6,0 – 7,5

The role of potassium in crops:

- is responsible for the quantity and quality of the yield
- participates in the regulation of nitrogen uptake
- is responsible for the water management in plants
- contributes to building resilience to drought conditions
- promotes the development of the root system and the uptake of other nutrients from the soil
- increases the frost resistance of plants
- is involved in the formation of starches and sugars

Potassium deficiencies result in:

- inability to defend themselves against drought stress: plants lose their turgor and start to wilt
- yellowing of leaves progressing from the edges. Over time, the leaves wilt, turn brown and die.
- the plants are smaller, with a shorter and more flaccid stem.
- delayed flowering, flowers are noticeably smaller
- limited ear and cob formation, poor grain pouring

The role of nitrogen in crops:

- building material for proteins and nucleic acids
- ensures proper development of plants: roots and above ground parts
- important constituent of chlorophyll, vitamins, hormones and DNA
- has a beneficial effect on optimum vegetation length: flowering and yielding
- improves water management in plants, increases drought tolerance.
- stimulates the development of the root system and increases the absorption of nutrients from the soil

Nitrogen deficiencies result in:

- light green colour of leaves and plant stems in extreme deficiency turning into yellow discolouration of leaves
- abnormal, reduced plant habit
- poorly formed fruit, pods or ears
- accelerated maturation.
- increased susceptibility to fungal diseases and the effects of insect feeding.

VitaFer[®]
KOMBI

VitaFer KOMBİ



Recommendations for use:

- for preventive and intervention supplementation when a deficit becomes apparent.
- where the natural uptake of nutrients from the soil is impaired, e.g. by adverse weather conditions
- in crops with high nitrogen/potassium requirements.
- to increase resistance to stress caused by drought, disease and the consequences of insect foraging
- to optimise bud formation, flowering and fruiting processes
- to improve the size and quality of the crop, to improve the taste of fruit and vegetables and to improve storage quality.

Dosage and timing of application:

Crop	Dose (l/ha)	Number and timing of treatments
Sugar beet	3	2 treatments: from 4-6 leaf stage to 100% canopy closure (BBCH 16-39), at intervals of 12-14 days
Onion, leek	3-5	2-3 treatments: from the 3-4 leaf stage (BBCH 13-25) or 2 weeks after planting, at intervals of 7-14 days
Hops	3	3 treatments: during the period of intensive growth
Fruit trees and shrubs	3	3 treatments: from the pink/white bud stage (BBCH 51)
Cabbage, cauliflower, broccoli	3-5	2-3 treatments: from the 4-6 leaf stage (BBCH 15-19), at intervals of 7-14 days
Maize	2-3	2 treatments: from the 4 to the 8 leaf stage (BBCH 15-18)
Carrot, parsley	3-5	2-3 treatments: from the tuberous root formation stage (BBCH 41-50) until 3 weeks before harvest, at intervals of 7-14 days
Cucumber, tomato	3-5	2-3 treatments: from the 3-4 leaf stage (BBCH 13-25) (or 2 weeks after planting), at intervals of 7-10 days
Oilseed rape	2	3 treatments: from the start of growth to the beginning of bud development (BBCH 30-50)
Cereals	2	2-3 treatments: after the start of growth until the end of earing (BBCH 25-59)
Potatoes	2-3	3 treatments: first - during intensive leaf and stem development (BBCH 19-49), second - at the beginning of flowering (BBCH 51-55), third - 12 days after the second one

*Attention: The fertiliser must not be mixed with phosphate fertilizers.
Fertigation - not to exceed a concentration of 0,3%

VitaFer[®]
KOMBİ

VitaFer MICRO

Mineral fertilizer for the intervention and preventive supply of key micronutrients with an optimal addition of nitrogen

11,6% N + 14% K₂O + 4,2% MgO + 7% SO₃ + 0,049% B + 0,77% Cu + 1,4% Fe + 2,1% Mn + 0,014% Mo + 1,4% Zn

%(m/v)

Density 1,45 kg/l

pH 5,0 – 7,0



The role of micronutrients in crops:

- participate as components or activators of enzymes in many metabolic reactions in plants
- determine the efficient use of nitrogen, phosphorus and other nutrients
- have a positive effect on yield quantity and quality
- increase plant resistance to pathogens

Micronutrient deficiencies result in:

- yellowing and withering of the oldest leaves,
- stunting of plant growth, especially leaves
- poor tillering,
- deformation of fruit, pods and ears

Recommendations for use:

- as a preventive or interventional product to correct micronutrient deficiencies in plants
- before winter rest, increasing the frost resistance of plants
- as a product for improving germination and rooting of plants and increasing the absorption of nutrients from the soil
- to increase the assimilative surface area of the leaves and increase the aboveground biomass.
- in late-sown winter cereals to promote the tillering of the cereals
- to improve the quality and quantity of the crop, the consumption value (colour, flavour, aroma, size).
- to increase resistance to weather stresses, diseases and pests.

Dosage and timing of application:

Crop	Dose (l/ha)	Number of treatments and application timing
Sugar beet	0,5 – 1	2 treatments: first at the 4-8 leaf stage (BBCH 14-18) and next when leaves cover 50% of soil surface (BBCH 35)
Fruit trees	0,5 – 1	2-3 treatments: first at the beginning of fruit development (BBCH 71), next two weeks after the first treatment, third after the harvest
Maize	0,5 – 1	2 treatments: first at the 4-8 leaf stage (BBCH 14-18), next 12-14 days after first treatment
Oliseed rape	0,5 – 1	3 treatments: first treatment in autumn at the 4-8 leaf stage (BBCH 14-18), 2 treatments in spring: first after the start of vegetation and another during flower bud development (BBCH 30-59)
Field vegetables	0,5 – 1	2-3 treatments: During intensive growth, 1 treatment at the 3-4 leaf stage (BBCH 13-14) or 10-14 days after planting, subsequent treatments every 7-10 days
Cereals	0,5 – 1	3 treatments: first treatment in autumn at the 4-8 leaf stage (BBCH 14-18), 2 treatments in spring: the first after the start of the vegetation and another until the end of the earing stage (BBCH 51-59)
Potatoes	0,5 – 1	2 treatments: first treatment during tuber setting (BBCH 40-49), next treatment after flowering (BBCH 69)

Fertigation - not to exceed a concentration of 0,3%

VitaFer[®]
MICRO

VitaFer Mg

Mineral fertilizer for the intervention and preventive supply of magnesium, sulphur and nitrogen

5,6% N + 21% MgO + 14% SO₃

%(m/v)

Density 1,4 kg/l

pH 6,0 – 7,5

The role of magnesium in plants:

- stimulates the development of the root system and favourably influences the uptake of nutrients from the soil
- improves the quality of vegetable protein
- reduces the nitrate content of the plant
- has a positive effect on the transport and accumulation of phosphorus in the seed
- as a component of chlorophyll, favourably influences the photosynthetic process

Magnesium deficiencies cause:

- reduced uptake and utilisation of soil nitrogen
- reduction in protein, sugars including starch in potatoes
- poor plant growth, delayed development stages
- decrease in plant resistance to disease
- yield reduction

Recommendations for use:

- for preventive and intervention supplementation when a deficit becomes apparent
- in agricultural, fruit and vegetable crops with high magnesium requirements: sugar beet, cereals, winter rape and crops grown using intensive technology aimed at achieving high yields
- to increase resistance to stress (low temperatures, drought), effects caused by negative impacts of pathogens and insects
- as an aid to root system development and to improve nitrogen and phosphorus uptake from the soil
- to encourage the tillering of cereals
- in order to improve quality and quantity of the yield
- to increase the winter hardness of plants



Dosage and timing of application:

Crop	Dose (l/ha)	Number of treatments and application timing
Sugar beet	3	2 treatments: from the 4-6 leaf stage to 100% canopy closure (BBCH 16-39)
Fruit trees and shrubs	3	3-5 treatments per growing season
Other crop species	2	3-5 treatments per growing season
Oilseed rape	3	2 treatments: in spring from the beginning of the elongation of the main shoot right after the start of vegetation up to the beginning of the development of the flower buds (BBCH 30-51)
Brassicacae	2-3	2 treatments: first at the intensive vegetative growth stage (BBCH 13-69), second at the head setting stage (BBCH 71-81)
Root and tuber vegetables	2	2 treatments: first during the intensive vegetative growth stage, second during the storage root growth stage
Cereals	2	2-3 treatments: after the start of vegetation up to the beginning of earing (BBCH 31-50)
Potatoes	3	2 treatments: first before the canopy closure, second after 10-14 days (BBCH 31-39)

The fertilizer must not be mixed with calcium fertilizers and magnesium sulphate.
Fertigation - not to exceed a concentration of 0,3%

VitaFer[®]
Mg

VitaFer EXTRA Ca

Mineral fertilizer for the intervention and preventive supply of calcium, nitrogen and magnesium

14% N + 2,8% MgO + 21% CaO + 0,077 %B + 0,063% Cu
+0,077% Fe + 0,14% Mn + 0,014% Mo + 0,035 %Zn

%(m/v)

Density 1,4 kg/l

pH 6,0 – 7,0



The role of calcium in plants:

- Regulates enzyme activity in plant metabolic processes (growth, development, yield)
- Mitigates the effects of biotic and abiotic plant stresses
- Has a strong influence on plant cell structure and division
- Increases plant resistance to mechanical damage and damage caused by diseases and pests
- It promotes proper rooting of plants and influences the uptake of adequate amounts of water and nutrients from the soil.

Calcium deficiencies result in:

- Glassy patches on young leaves, fruit and flowers
- Necrosis on leaf edges
- Dwarfing of flowers
- Dry apical rot of plants
- Subcutaneous bitter spot,
- Cracking of plums and cherries
- Browning of the skin
- Strawberry sponginess

Recommendations for use:

- To correct calcium deficiencies in plants either intervening or preventively, especially during periods when its natural uptake by the root system is impaired.
- To improve the quantity and quality of the yield and storability – better flavour, higher fruit firmness, better colouring.
- To strengthen leaf and stem structure.
- As a plant growth booster on acidified soils.
- To provide protection against dry apical rot disease, which is caused by a deficiency of calcium in the plants
- To stimulate the development of the root system by increasing the uptake of nutrients from the soil. Also as an aid against cabbage syphills.

Dosage and timing of application:

Crop	Dose (l/ha)	Number and timing of treatments
Peach	3-6	3-4 treatments: during the period of primordium and fruit growth (BBCH 69-89)
Stone trees	3-6	3-4 treatments: during the period of primordium and fruit growth (BBCH 69-89)
Pome trees	2-5	2-4 treatments: during the period of primordium and fruit growth (BBCH 69-89)
Other vegetables in field crops	4-5	2-3 treatments: during the entire growing season every 10-14 days
Tomatoes, capsicum, cucumbers	4-5 (0,2% under cover)	2-3 treatments: from fruit setting stage (BBCH 4F-5I)
Lettuce, endive	4-5	2-3 treatments: 14-21 days after planting (BBCH 15-17)
Strawberries	3-6 (max 3% solution)	2-3 treatments: from fruit setting stage (BBCH 67-89)
Brassicas	4-5	2-3 treatments: from the start of head setting (BBCH 19-4I)

Attention: The fertilizer must not be mixed with phosphate fertilizers.

VitaFer[®]
EXTRA Ca

VitaFer EXTRA Zn

Mineral fertilizer for the intervention and preventive supply of zinc

6,5% N + 2,6% K₂O + 7,15% SO₃ + 19,5% Zn

%(m/v)

Density 1,3 kg/l

pH 3,5 – 4,5



The role of zinc in crops:

- Regulates the hormonal balance of the plant and favourably influences the photosynthetic process
- Increases resistance to fungal diseases and prolongs the "green leaf" effect
- Influences quality and quantity of the yield: high starch, oil and vitamin content
- Improves efficiency of nitrogen fertilization

Zinc deficiencies result in:

- Chlorosis: white-yellow spots on leaf tips
- Dwarfing of plants
- Reduction in the formation of flower buds
- Shortening and curling of leaves, in extreme conditions leaf dieback may occur
- Shortening and dieback of lateral shoots, which can occur in extreme conditions

Recommendations for use:

- In crops with a high zinc requirement: maize, potatoes, cereals, vegetable and fruit crops.
- In conditions of nutrient deficiency – intervention and prevention
- To stimulate the development of the root system and increase the absorption of nutrients from the soil: nitrogen, phosphorus and potassium
- To increase resistance to stress conditions and pathogens
- To increase and improve crop quality and storability parameters

VitaFer[®]
EXTRA Zn

Dosage and application

Crop	Dose (l/ha)	Number and timing of treatments
Sugar beet	0,5-1	3 treatments: from the 4-6 leaf stage to canopy closure (BBCH18-39) every 12-14 days
Apple and pear trees	0,75-1,5	3-4 treatments: 1-2 treatments as a preventative measure or after symptoms of zinc deficiency and 2 treatments: a few weeks before the harvest to improve the basic stability and correct colour of the fruit (BBCH 55-59), at intervals of 12-14 days
Berries	0,75-1,5	3-4 treatments: 1 intervention or supplementary treatment, in autumn – after harvest up to 3 treatments, every 12 days (recommended dose 1l/ha)
Maize	0,75-1	2 treatments: from the 3-5 leaf stage (BBCH 15-18) every 7-12 days
Other field vegetables	0,5	1-2 treatments: at any stage of development, when symptoms of zinc deficiency appear on the plants or during periods unfavourable for zinc uptake, at intervals of 12-14 days
Winter oilseed rape	0,5	2 treatments: in autumn from the 4-6 leaf stage to two weeks before the end of autumn vegetation (BBCH 20-25), in spring from the start of vegetation to the beginning of bud development (BBCH 30-51)
Legumes	0,5-1	2-3 treatments: from emergence to flower bud stage (BBCH 21-59), every 9 days
Ground vegetables with high zinc requirements	0,5	3 treatments: first during intensive growth, after at least 8-9 leaves have developed, subsequent treatments at intervals of 12-14 days (also recommended when deficiency appears)
Cherries and plums	0,75-1,5	5-7 treatments: in spring – 2 treatments from the bud burst to the green bud stage (recommended dose 0,75-1,0 l/ha), in summer (especially on apple trees) – several treatments after June bud drop (recommended reduced dose 0,1 – 0,15 l/ha), after harvest: up to 3 treatments, 14 day intervals (recommended dose 1,5 l/ha)
Spring cereals	0,3	2 treatments: from the 3-4 leaf stage to the earing stage (BBCH 13-51), at intervals of 12-14 days
Winter cereals	0,5	3 treatments: in autumn – one treatment from the 3-4 leaf stage until two weeks before the end of autumn vegetation (BBCH 13-25), in spring – 2 treatments from the start of vegetation until the end of the stem elongation stage (BBCH 25-51)
Potatoes	0,5-1	2 treatments: from the shoot formation stage until 40% of the final weight of the tubers is reached (BBCH 35-73), at intervals of 12-14 days

VitaFer® Extra Zn can be used at the indicated developmental stages of crops or when symptoms of zinc deficiency are found on crops in order to eliminate them.

VitaFer Zn + B

Mineral fertilizer for the intervention
and preventive supply of zinc and boron

3,9% N + 5,48% B + 5,48 % Zn

%(m/v)

Density 1,37 kg/l

pH 6,0 – 7,0

The role of boron in crops:

- contributes to the correct growth and development of the root system
- contributes to the correct development of the generative system
- promotes flowering, aeration and proper water balance in the plant
- promotes frost resistance of plants

Boron deficiencies result in:

- death of root growth cones and aboveground shoots
- poorer development of the vascular tissues and impaired flow of water and assimilates in the plant
- weakening of the flowering process and fruiting
- reducing the sugar content of roots and tubers of root crops

Fertiliser action:

- optimum supply of the vital plant nutrients: zinc and boron
- increases crop yields and improves crop quality
- improves storage properties
- stimulates the growth of the root system and increases the absorption of nutrients from the soil, particularly nitrogen
- increases protein and sugar production in the plant

The role of zinc in crops:

- influences plant resistance to biotic and abiotic stress conditions
- increases crop quality and yield
- accelerates plant recovery from stress factors
- has a positive effect on improving the efficiency of nitrogen fertilization
- prolongs the life of pollen and has a beneficial effect on the pouring of grain

Zinc deficiencies result in:

- chlorosis of leaves, spot chlorosis, so-called white bud disease
- shortened internode length and plant dwarfism
- delayed flowering and panicle shedding
- curling of potato leaves with progressive brown necrosis

VitaFer[®]
Zn+B

VitaFer Zn + B



Recommendations for use:

- for preventive use in crops susceptible to zinc and boron deficiencies: Maize, cereals, sugar beet, potatoes, brassicas and orchard crops.
- for the rapid and safe supplementation of zinc and boron deficiencies when a deficit becomes apparent.

Dosage and timing of application

Crop	Dose (l/ha)	Number and timing of treatments
Sugar beet	2	2 treatments: from the 4-6 leaf stage to canopy closure (BBCH18-39), every 12-14 days
Fruit trees	1-2	2-4 treatments: in spring 2 treatments from the bud loop stage (recommended dose 1-1.5l/ha), in summer (especially on apple trees): several treatments after June bud drop (recommended reduced dose 0.3-5l/ha), after harvest: up to 3 treatments, 14 day intervals (recommended dose 1.5l/ha), in autumn: 1-2 treatments after harvest, before leaf drop (recommended dose 2 l/ha)
Maize	2	2 treatments: first at 4-5 leaf stage (BBCH 15-16) and next 7-14 days after first application
Tomatoes, capsicum	2	1 treatment: before flowering (BBCH 51-60)
Oilseed rape	2	3 treatments: in autumn: 1 treatment from the 4-6 leaf stage until two weeks before the end of autumn vegetation (BBCH 20-25); in spring: 2 treatments from the start of the vegetation up to the beginning of bud development (BBCH 30-51) at an interval of 14 days
Sunflower	2	2 treatments: from the 4-6 leaf stage to the beginning of the main shoot growth (BBCH 15-21)
Strawberries	2	2 treatments: first after the start of the vegetation (BBCH 15-40), second in autumn, 10-14 days after the harvest
Brassicas	2	2 treatments: first: at 4-6 leaf stage (BBCH 13-19), next after 10-14 days
Root vegetables	2	2 treatments: first: at 3-4 leaf stage (BBCH 13-17), next after 10-14 days
Legumes	2	1 treatment: before flowering (BBCH 51-60)
Spring cereals	1	2 treatments: from the start of the vegetation until the end of the stem elongation stage (BBCH 25-51)
Winter cereals	1	3 treatments: in autumn - one treatment from the 3-4 leaf stage until two weeks before the end of autumn vegetation (BBCH 13-25), in spring - 2 treatments from the start of vegetation until the end of the stem elongation stage (BBCH 30-49)
Potatoes	2	2 treatments: from the shoot formation stage until 40% of the final weight of the tubers is reached (BBCH 35-73), at intervals of 12-14 days

Fertigation - not to exceed a concentration of 0.3%

VitaFer[®]
Zn+B

VitaFer EXTRA Mn

Mineral fertilizer for the intervention and preventive supply of manganese

6,56% N + 3,28% K₂O + 22,96% SO₃ + 27,88% Mn

%(m/v)

Density 1,64 kg/l

pH 3,5 - 4,5



The role of manganese in crops:

- has a positive effect on the nitrogen balance of the plant by, among other things, preventing excessive nitrate accumulation in the plant
- increases the amount of vitamin C
- influences protein synthesis in the plant
- improves root system morphology by stimulating phosphorus uptake
- increases frost resistance
- improves tolerance to stress conditions – especially drought
- has a toxic effect on certain soil pathogens, thereby reducing disease pressure
- by activating enzymes, improves photosynthesis and increases the amount of chlorophyll in the leaves

Manganese deficiencies result in:

- Mottled chlorosis on young leaves
- Inhibition of plant growth,
- Yellowing of leaves and appearance of brown spots between nerves
- Stunted root growth
- Partial leaf dieback
- Reduced plant uptake of nitrogen and phosphorus

Recommendations for use:

- For crops with a high manganese requirement: sugar beets, potatoes, field vegetables, fruit trees, maize, cereals, legumes
- In dry years or on dry soils to increase resistance to stress conditions
- In order to compensate for the Mn deficit when it occurs
- To increase frost resistance
- To increase resistance to abiotic and biotic stress conditions: drought, disease-causing pathogens
- To improve yield quantity and quality

Dosage and timing of application

Crop	Dose (l/ha)	Number of treatments and application timing
Sugar beet	0,5-1	2 treatments: from the 4-6 leaf stage to 100% canopy closure (BBCH16-39), at intervals of 12-14 days
Fruit trees	0,5	3-4 treatments: 1-2 treatments as a preventative measure or after symptoms of manganese deficiency; 2 treatments in an apple or pear tree: a few weeks before the harvest to improve the basic stability and colour of the fruit (BBCH 55-59), at intervals of 12-14 days
Berries	0,5	2-3 treatments: throughout the vegetation: preventively or by intervention at the time of visible deficiency, at intervals of 10-12 days
Maize	0,5-1	1 treatment at the 6-10 leaf stage (BBCH 16-19)
Winter oilseed rape	0,5-1	2 treatments: first in autumn – from the 6 leaf stage to 2 weeks before the end of autumn vegetation (BBCH 16-25), second in spring – from the start of vegetation to the beginning of bud development (BBCH 30-51)
Field vegetables	0,5	2 treatments: first during the entire vegetation and growth period or in periods unfavourable for manganese uptake (such as drought), at an interval of 12-14 days
Spring cereals	0,5-1	2 treatments: in spring – from the 3-4 leaf stage (BBCH 13-25), until the end of the earing stage (BBCH 25-59), at an interval of 12-14 days
Winter cereals	0,5-1	2 treatments: in autumn from the 3-4 leaf stage to 2 weeks before the end of autumn vegetation (BBCH 13-25), in spring from the start of vegetation to the end of the earing stage (BBCH 25-59)
Potatoes	0,5-1	2 treatments: from the shoot formation stage until 40% of the final weight of the tubers is reached (BBCH 35-73), at intervals of 12-14 days

Fertigation - not to exceed a concentration of 0,3%

Do not mix with phosphorus, potassium, silicon and boron fertilizers. For other foliar fertilizers and pesticides, a mixability test should be carried out before application.

VitaFer[®]
EXTRA Mn

VitaFer Cu

Mineral fertilizer for the intervention and preventive supply of copper and nitrogen.

20,25% N + 6,75% Cu

%(m/v)

Density 1,35 kg/l

pH 5,0 – 6,5

The role of copper in plants:

- Influences proper ear formation in cereals and the flowering process
- Responsible for the correct development of the root system
- Good nutrition with this element results in better grain filling in the ear
- Strengthens the mechanical resistance of the plant and increases resistance to lodging
- Increases plant resistance to fungal and bacterial diseases
- Increases protein, fat and sugars in the crop.
- Improves the storability of vegetables

Copper deficiencies result in:

- disease of a newly cultivated land occurring in cereals that becomes apparent during the dry season: chlorosis of leaf margins, bleaching and twisting of leaves, bleaching of ears.
- Excessive and prolonged earing of cereals
- Delaying the flowering phase of cereals
- Empty ears in cereals
- Blue colouring of the leaves in tomatoes.

Recommendations for use:

- In order to provide copper as a preventive and intervention measure, in the event of a deficit in the plants
- In crops with a high demand for copper: cereals, sugar beet, vegetable crops and orchards
- In order to improve the winter hardiness of crops
- To increase resistance to biotic stress caused by harmful pathogens and abiotic stress caused by drought, high temperatures or frost.
- To improve crop quality and increase storability



Dosage and timing of application

Crop	Dose (l/ha)	Number of treatments and application timing
Sugar beet	1,5-2	1 treatment at the 4-6 leaf stage (BBCH 14-18)
Fruit trees and shrubs	1-1,5	2 treatments: at the green bud stage (BBCH 53-59) and after harvest (BBCH 89-99)
Field crops (carrots, onions, lettuce)	1-1,5	2 treatments: when deficiencies are noticed at an interval of 12-14 days
Spring cereals	1,5-2	2 treatments: from the beginning of tillering to the end of earing (BBCH 25-59)
Winter cereals	1,5-2	3 treatments: in autumn – 1 treatment from the 3 leaf stage (BBCH 13-25), in spring 2 treatments after the start of growth up to the 2nd elbow stage (BBCH 25-49) and at the earing stage (BBCH 50-59)
Potatoes	1,5-2	1 treatment: after flowering (BBCH 69)

VitaFer[®]
Cu

VitaFer Fe

Mineral fertilizer for the intervention and preventive supply of iron, sulphur, potassium and nitrogen

7%N + 5,6% K₂O + 21,42% SO₃ + 15,4% Fe

%(m/v)

Density 1,4 kg/l

pH 6,0 – 7,0



The role of iron in crops:

- influences the processes of photosynthesis and cellular respiration by participating in electron transport
- increases the synthesis of chlorophyll, carotene and xanthophyll (normal plant weight and high nutritional quality)
- improves efficiency of nitrogen metabolism and protein production
- is involved in the metabolism of fatty acids

Iron deficiencies result in:

- reduces flowering of fruit trees and bushes
- in orchard crops leads to chlorosis of the apical leaves and subsequent death of branches and shoots
- in case of iron deficiency in plants, non-protein nitrogen compounds accumulate
- the storability of fruit and vegetables deteriorates

Recommendations for use:

- for preventive and intervention use in the event of iron deficiency
- in crops that are particularly sensitive to iron deficiencies: berry crops, fruit crops, vegetables
- to improve plant resistance to stress conditions: drought, the effects of fungal diseases and pest pressure
- to improve yield level and quality and storability parameters
- to increase plant survival after wintering
- to improve plant water management and increase resistance to drought conditions
- to stimulate the correct development of the root system and to increase the absorption of nutrients from the soil

Dosage and timing of application

Crop	Dose (l/ha)	Number of treatments and application timing
Fruit trees	1,5	3-4 treatments: after petal fall (BBCH 71), repeat several times every 4 weeks
Strawberries	0,25%*	6-7 treatments: seedlings - immerse roots and centre of leaves for 15-20 min, autumn: spray after harvest - late September, Foliar application: 3-4 treatments, at the beginning of vegetation up to the pre-flowering stage (BBCH 54-57), repeat 2-3 times until the fruit starts to colour Fertigation: 1 treatment until colour develops (BBCH 75-79)
	6-7	
	1,5	
Vegetables	1,5-2,0	3-4 treatments: after 3-4 leaves have developed (BBCH 13-14), every 10-12 days
	1,5	
Vine	1,5	2-3 treatments: before flowering (BBCH 53), until full grapes form (BBCH 79), at intervals of 12-14 days
Potatoes	1,5-2,0	3-4 treatments: apply from the tuber setting stage until the beginning of the drying of the haulm (BBCH 40-97), every 10-14 days

*aqueous solution

VitaFer[®]
Fe

VitaFer Seeds

Specialised suspension mineral fertilizer
for seed treatment.

9,1% N + 10,4% P₂O₅ + 6,5% SO₃ + 2,3% Cu
+ 0,97% Mn + 0,39% Mo + 2,3% Zn

%(m/v)

Density 1,30 kg/l

pH 6,0-7,5



Recommendations for use:

- Nutrient suspension for seed conditioning with nitrogen, phosphorus, copper, sulphur, manganese, molybdenum and zinc.
- The fertilizer meets the specific requirements of plants in the early stages of development and offsets the negative effects of stress conditions that can occur during germination and early plant growth. Nutrients are readily available to the emerging root system.
- The suspension spreads evenly over the seed surface and adheres very well to the seed.
- Protects against soil-borne or seed-borne pathogens.
- The formulation can be used in combination with other fungicide and insecticide treatments.

Dose

Recipe for 1 000 kg of seed

Dissolve 1 litre of product in 10 litres of water

VitaFer[®]
SEEDS

VitaFer Premium

Highly concentrated mineral fertilizer for the intervention and preventive supply of manganese, copper and zinc.

8,25%N +2,64% MgO +14,85% SO₃+ 7,095%Cu
+18,15%Zn+0,0099%Mo

%(m/v)

Density 1,65 kg/l

pH 4,0 – 5,0

The role of manganese in crops:

- influences the nitrogen management of plants
- increases resistance to abiotic stress – particularly beneficial for frost resistance.
- contributes to a better growth of the root system – stimulates the uptake of phosphorus
- improves photosynthesis
- has a positive effect on the development of resistance to mechanical injury to plants

Manganese deficiencies result in:

- inhibition of plant growth
- yellowing of leaves – impairment of chlorophyll synthesis
- appearance of brown patches between the nerves

The role of copper in plants

- favourably influences the synthesis of proteins, vitamins, carbohydrates and enzymes
- has the effect of increasing the amount of grain in the ear
- enhances resistance to lodging
- supports the action of fungicides
- is involved in the formation of papillary bacteria in leguminous plants

Copper deficiencies result in

- inhibition of plant growth
- poorly formed root system
- reduction in cereal grain quality through poor ear and panicle formation
- reduction in fruit quality – inflorescences and fruit develop incorrectly, dwarfing may be observed
- reduction in vitamin C, carotene and chlorophyll

The role of zinc in plants:

- influences the production of growth substances, regulating normal growth and development
- increases resistance to periodic water shortages and low temperatures
- accelerates recovery from stress factors
- has a positive effect on improving the efficiency of nitrogen fertilization
- supports the metabolism of carbohydrate and protein compounds
- improves the efficiency of chlorophyll formation
- has a positive effect on the permeability of cell membranes and regulates the ratio of nutrients at cellular level
- improves plant resistance to disease

Zinc deficiencies result in:

- disruption of nitrogen metabolism and increased accumulation of amides and free amino acids in the plant
- plant dwarfism – shorter shoots and internodes

VitaFer Premium



Dosage and timing of application:

Crop	Dose (l/ha)	Number of treatments and application timing
Winter cereals	1	3 treatments: in autumn 1 treatment from the stage of 3 developed leaves, in spring the first treatment from the beginning of vegetation until the stage of the second elbow (node), the second treatment during the earing stage
Spring cereals	1	2 treatments from the beginning of the tillering stage to the end of the earing stage
Sugar beet	1	1 treatment: during stage of 4-6 developed leaves
Potatoes	1	1 treatment after flowering
Fruit trees and shrubs	1	2 treatments: during green bud stage and after the harvest
Carrots, onions, lettuce	1	2 treatments after noticing a nutrient deficiency at 10-14 day intervals

Do not exceed the recommended application rate of 3 l/ha per crop per season.

Recommendations for use:

- for the intervention and preventive supply of manganese, copper, magnesium and zinc.
- to stimulate the development of the root system and increase the absorption of nutrients taken up by the plants from the soil.
- to increase the resistance of plants to stress conditions, as a formulation to increase plant health and frost resistance.
- to increase yield quantity and quality
- to stimulate plant metabolism and increase tolerance to stress factors: drought, frost, negative impacts of pathogens and pests.

VitaFer[®]
PREMIUM

VitaFer Boron

Mineral fertilizer for the intervention and preventive supply of boron, phosphorus and nitrogen.

10,56% N +13,2% P₂O₅ + 9,24% B + 0,066% Cu + 0,132% Fe + 0,066% Mn + 0,00132% Mo + 0,066% Zn

%(m/v)

Density 1,32 kg/l

pH 6,5 - 7,2



The role of boron in crops:

- contributes to the correct growth of the root system
- influences the correct growth of the generative system
- promotes flowering, aeration and water management
- is involved in the metabolism and movement of carbohydrates in the plant
- together with potassium, it is responsible for water management in the plant
- promotes frost resistance of plants

Boron deficiencies result in:

- death of growth cones of both roots and above ground shoots
- poorer development of the vascular tissues and disturbed water balance and assimilate flow in the plant
- fruit suberization and russeting
- weakening of flower and fruit setting
- lower sugar content in roots and tubers of root crops

Recommendations for use:

- To correct boron deficiency during the growing season for intervention as well as preventive use. The use of additional nutrients in the fertilizer increases the efficiency of boron uptake by exploiting the synergistic phenomenon.
- To improve rooting, flowering and pollen quality.
- For regeneration purposes when the root system is damaged by soil pests.
- To improve yield quantity and quality. Improves the storage properties of the crop.
- To ensure stable vegetative and generative growth of field and orchard plants.
- To optimise the uptake of soil nutrients such as phosphorus and potassium.

Crop	Invisible deficit – average requirement		Visible deficit – high requirement		Application timing
	Number of treatments	Dose (l/ha)	Number of treatments	Dose (l/ha)	
Oilseed rape	2	2,0	2-3	3,0	During the stage of intensive growth
Sugar beet	2	2,0	2-3	3,0	
Maize	1-2	2,0	2	3,0	
Potatoes	1-2	2,0	2	3,0	
Brassicas	2	2,0	2-3	3,0	
Carrots, celery	2	2,0	2-3	3,0	
Tobacco	2	2,0	2	3,0	

Dosage and timing of application

Crop	Dose (l/ha)	Timing and number of treatments
Pome fruit	2-3	3 treatments: first treatment at the green bud stage (BBCH 50-53), second treatment from the petal drop stage (BBCH 60-69), third treatment after harvest (BBCH 90-99)
Stone fruit	2	3 treatments: first treatment at the green bud stage (BBCH 50-53), second treatment from the petal drop stage (BBCH 60-69), third treatment after the harvest (BBCH 90-99)
Vine	2-3	2 treatments: first during the 4-5 leaf stage, second treatment after the harvest
Strawberries	3	1 treatment: before flowering (BBCH 19-55) or 14 days after planting.

Use only in case of boron deficiency.

Do not exceed the recommended doses.

Can be used in fertigation at concentrations of up to 0,3%.

VitaFer[®]
BORON

**LIQUID FOLIAR
FERTILIZERS**

VitaFer[®]



VitaFer N

Mineral fertilizer for the intervention and preventive supply of nitrogen, phosphorus and potassium

14,16% N + 4,72% P₂O₅ + 7% K₂O + 0,013% B + 0,009% Cu + 0,016% Mn + 0,00118% Mo + 0,007% Zn

%(m/v)

Density 1,34 kg/l

pH 5,5 – 6,5

The role of nitrogen in crops:

- building material for proteins and nucleic acids
- ensures proper development of plants: roots and above ground parts
- important constituent of chlorophyll, vitamins, hormones and DNA
- has a beneficial effect on optimum vegetation length: flowering and yielding
- improves water management in plants, increases drought tolerance.
- stimulates the development of the root system and increases the absorption of nutrients from the soil

Nitrogen deficiencies result in:

- light green colour of leaves and plant stems in extreme deficiency turning into yellow discolouration of leaves
- abnormal, reduced plant habit
- poorly formed fruit, pods or ears
- accelerated maturation
- increased susceptibility to fungal diseases and the effects of insect feeding

Recommendations for use:

- suitable for preventive and intervention use in agricultural, vegetable and orchard crops
- ensures proper development, stimulates growth of their resistance to stress conditions
- protects against the negative effects of fungal diseases and pest attacks
- supplies plants with nitrogen and other necessary nutrients during periods when the natural uptake of these nutrients by the root system is impaired, e.g. by unfavourable weather conditions
- quickly compensates for nutrient deficiencies
- increases plant tolerance to physiological stresses



Dosage and timing of application:

Crop	Dose (l/ha)	Number and timing of applications
Sugar beet	5	3 treatments: 3-4 leaf stage (BBCH 13-14) and two treatments at a two-week interval during canopy enclosure (BBCH 3F-39)
Fruit trees	5	2 treatments: Leaf development stage (BBCH 15-19) and during the period of intensive growth
Maize	5	2 treatments: 4 leaf stage (BBCH 14) and two weeks after the first treatment
Oilseed rape	5	3 treatments: One treatment in autumn at the 3 leaf stage (BBCH 13), two treatments in spring after the resumption of vegetation and during flower bud development (BBCH 30-59)
Ornamental plants	0,2-0,3%	1 treatment: Foliar and substrate application during seedling production
Strawberries	5	4 treatments: Three treatments from the beginning of vegetation to harvest and one after harvest
Field vegetables	5	2-3 treatments: From the second leaf stage or 2 weeks after planting to harvest, at intervals of 8-10 days
Vegetables under cover	0,2-0,3%	2-3 treatments: From the second leaf stage or 2 weeks after planting to harvest, at intervals of 8-10 days
Cereals	5	3-4 treatments: One treatment in autumn from the 3 leaf stage (BBCH 13); 2-3 treatments in spring after the start of vegetation until the end of the earing stage, at intervals of 10-14 days
Potatoes	5	2-3 treatments: first at shoot formation stage (BBCH 09 -11) next at intervals of 10-14 days

Fertigation - not to exceed a concentration of 0.3%

VitaFer
N

VitaFer N+

Mineral fertilizer for the intervention and preventive supply of nitrogen, phosphorus and potassium

36,18% N + 4% MgO + 0,015% B + 0,261% Cu + 0,028% Fe + 1,34 % Mn + 0,00134% Mo + 0,008%Zn

%(m/v)

Density 1,34 kg/l

pH 5,5 – 6,5



The role of nitrogen in crops:

- building material for proteins and nucleic acids
- ensures proper development of plants: roots and above ground parts
- important constituent of chlorophyll, vitamins, hormones and DNA
- has a beneficial effect on optimum vegetation length: flowering and yielding
- improves water management in plants, increases drought tolerance
- stimulates the development of the root system and increases the absorption of nutrients from the soil

Nitrogen deficiencies result in:

- light green colour of leaves and plant stems in extreme deficiency turning into yellow discolouration of leaves
- abnormal, reduced plant habit
- poorly formed fruit, pods or ears
- accelerated maturation
- increased susceptibility to fungal diseases and the effects of insect feeding

Recommendations for use:

- suitable for preventive and intervention use in agricultural, vegetable and orchard crops
- ensures proper development, stimulates growth of their resistance to stress conditions
- protects against the negative effects of fungal diseases and pest attacks
- supplies plants with nitrogen and other necessary nutrients during periods when the natural uptake of these nutrients by the root system is impaired, e.g. by unfavourable weather conditions
- quickly compensates for nutrient deficiencies
- increases plant tolerance to physiological stresses

Dosage and timing of application:

Crop	Dose (l/ha)	Number and timing of applications
Sugar beet	5	3 treatments: 3-4 leaf stage (BBCH 13-14) and next two treatments at a two-week interval during canopy enclosure (BBCH 31-39)
Fruit trees and shrubs	5	2 treatments: Leaf development stage (BBCH 15-19) and during the period of intensive growth
Maize	5	1-2 treatments: 6-8 leaf stage (BBCH 16-18) and two weeks after the first treatment
Oilseed rape	5	3 treatments: One treatment in autumn at the 4-8 leaf stage (BBCH 14-18), two treatments in spring after the resumption of vegetation and during flower bud development (BBCH 30-59)
Legumes	5	2 treatments: During the period of intensive growth (BBCH 13-70)
Field vegetables	5	2-3 treatments: from the second leaf stage (or 2 weeks after planting) to harvest, at intervals of 8-10 days
Cereals	5	3-4 treatments: one treatment in autumn from the 3 leaf stage (BBCH 13), 2-3 treatments in spring after the start of vegetation until the end of the earing stage, at intervals of 10-14 days
Potatoes	5	3 treatments: first at shoot formation stage (BBCH 09-11), at intervals of 10-14 days

Fertigation - not to exceed a concentration of 0.3%



VitaFer Si

Mineral fertilizer for the intervention and preventive supply of silicon.

5,12% N + 20,48% K₂O + 33,28% SiO₂

%(m/v)

Density 1,28 kg/l

pH 12,5

The role of silicon in crops:

- improves drought tolerance of plants by inducing physical, biochemical and biological changes in them: Stiffer leaf habit, increased stem stiffness, improved photosynthetic performance.
- improves plant tolerance to low temperatures – especially for maize and sugar beet
- reduces plant infection by fungal diseases by strengthening the cell walls of leaves and stems. Particularly beneficial effects are seen in the case of infestation of crops by powdery mildew, beet weevil and in potato in the case of infestation of plants by potato blight.
- reduces the feeding of biting and biting-sucking pests by inducing biochemical and mechanical defences.
- has the effect of increasing sugar polarisation in sugar beet and improving the taste and quality of the fruit.
- stimulates phosphorus absorption
- regulates nutrient uptake

Silicon deficiency results in:

- increased susceptibility to toxic substances, diseases and pests
- susceptibility to mechanical injury, brittleness.
- reduced crop biomass

Recommendations for use:

- to improve resistance to pathogens and pests.
- as a preventative product against the adverse effects of drought: prevents the evaporation of water from the plant
- to improve the quality of the crop and improve storage properties.
- preventive application of silicon improves the immune system of plants
- prevents excessive evaporation of water from plants
- increases frost resistance and tolerance to physiological stresses
- stimulates the development of the root system and enhances the absorption of nutrients from the soil



Dosage and application

Crop	Dose (l/ha)	Number and timing of treatments
Maize	0,5-1	1 treatment 4-8 leaf stage (BBCH 16-19)
Legumes	0,5-1	1 treatment during leaf and shoot development (BBCH 21 - 35)
Oilseed rape	0,5-1	2 treatments, first in autumn: 4-8 leaf stage (BBCH 20 - 25) second in spring: after the start of the vegetation (BBCH 30-35)
Orchard crops	0,5-1	2 treatments: first during green bud stage second during the fruit development stage
Vegetables	0,5-1	1 treatment – during intensive growth stage
Spring cereals	0,5-1	1 treatment – during the spring tillering stage (BBCH 14- 25)
Winter cereals	0,5-1	3 treatments: first in autumn: 3-6 leaf stage (BBCH 14 - 25) Second in spring: during the tillering stage (BBCH 25 - 30) Third during the stem elongation stage (BBCH 51)

VitaFer[®]
Si

VitaFer K

Mineral fertilizer for the intervention and preventive supply of potassium, nitrogen and phosphorus.

6,25% N + 10% P₂O₅ + 15% K₂O + 0,014% B + 0,01% Cu + 0,016% Mn + 0,0012% Mo + 0,007% Zn

%(m/v)

Density 1,25 kg/l

pH 5,5 - 7,5



The role of potassium in crops:

- is responsible for the quantity and quality of the yield
- participates in the regulation of nitrogen uptake
- is responsible for the water management in plants
- contributes to building resilience to drought conditions
- promotes the development of the root system and the uptake of other nutrients from the soil
- increases the frost resistance of plants
- is involved in the formation of starches and sugars.

Potassium deficiencies result in:

- inability to defend themselves against drought stress: plants lose their turgor and start to wilt
- yellowing of leaves progressing from the edges. Over time, the leaves wilt, turn brown and die.
- the plants are smaller, with a shorter and more flaccid stem.
- delayed flowering, flowers are noticeably smaller
- limited ear and cob formation, poor grain pouring

Recommendations for use

- in order to quickly replenish nutrient deficiencies, especially in times when the natural uptake by the root system is disrupted, e.g. by unfavourable weather conditions.
- to stimulate the development of the root system and aboveground biomass,
- to increase drought resistance by ensuring proper water management in the plant
- to increase disease resistance (e.g. potato blight),
- to ensure proper flower bud formation, flowering and fruiting,
- in order to increase the quantity and quality of the yield, improve the storability of, among other things, vegetables and fruit.

Dosage and timing of application

Crop	Dose (l/ha)	Number of treatments and application timing
Sugar beet	5	2 treatments: From the 4-6 leaf stage to 100% canopy closure (BBCH 16-39), at intervals of 12-14 days
Fruit trees and shrubs	5	2-3 treatments: From the green bud stage to the end of primordium and fruit growth (BBCH 59-81)
Maize	5	2 treatments: From the 4 leaf stage (BBCH 15-18)
Ornamental plants	0,2-0,5%	2-3 treatments: Foliar and soil application at intervals of 12-13 days
Oilseed rape	4-5	4 treatments: One in autumn - from the 6 leaf stage to 2 weeks before the end of autumn vegetation (BBCH 16-25), three treatments in spring - from the start of vegetation to the beginning of bud development (BBCH 30-50)
Strawberries	5	3 treatments: From the white bud formation stage (BBCH 57-67)
Field vegetables	5	3 treatments: From the 2nd week after emergence/planting every 12-14 days
Vegetables under cover	0,2-0,5%	3 treatments: Foliar or soil application, 2-3 weeks after planting every 10-12 days
Winter cereals	5	2 treatments: From the stage of stem elongation to the thickening of the flag leaf sheath (BBCH 31-51)
Potatoes	5	4 treatments: From the shoot formation stage until 40% of the final weight of the tubers is reached (BBCH 35-73), at intervals of 12-14 days

Fertigation - concentration up to 0.3%



VitaFer^S

Mineral, highly concentrated fertilizer for the intervention and preventive supply of sulphur, nitrogen and a full range of micronutrients.

19,8%N + 69,3% SO₃ + 0,014%B + 0,006%Cu + 0,027% Fe + 0,017%Mn + 0,00132%Mo + 0,006%Zn

%(m/v)

Density 1,32 kg/l

pH 5,5 – 6,5



The role of sulphur in crops:

- favourably influences protein and fat synthesis in the plant
- enhances photosynthesis
- increases the dry matter of the plant
- increases nitrogen productivity, resulting in better plant growth
- increases the plant's resistance to abiotic stresses (low and high temperatures, water shortage)
- increases the plant's resistance to biotic stresses – helps control fungal diseases, especially powdery mildew.

Sulphur deficiencies result in:

- in acute deficiency, there are characteristic symptoms of sulphur deficiency and consequent reduction in yield and quality. Symptoms are observed on the youngest leaves
- reduced photosynthetic activity
- stunted growth, small leaves, spoon-shaped leaves
- inhibition of protein and chlorophyll synthesis
- reduction in the size of the flowers, their falling off shortly after the start of flowering
- reduction in the size of the silique and the number of grains in the silique
- poor growth of young roots

Recommendations for use:

- for the preventive and intervention supply of the nutrient to crops to prevent sulphur deficiency
- to improve the uptake of nitrogen from the soil by stimulating root system development and increasing nutrient uptake
- to increase plant resistance and protect against the negative effects of abiotic and biotic stresses.
- to increase yield quantity and quality
- to improve the frost resistance of plants

Dosage and timing of application

Crop	Dose (l/ha)	Number of treatments and application timing
Sugar beet	3 – 5	2 treatments: from the 4 – 6 leaf stage to 100% canopy closure (BBCH 16–39)
Onion, garlic, leek, chives	3 – 5	2 treatments: at intensive vegetation stage, at an interval of 14 days
Fruit trees and shrubs	4 – 5	3 treatments: from green bud stage (BBCH 51–59)
Cabbage, cauliflower, broccoli, Brussels sprouts, Chinese cabbage	3 – 5	2 treatments: at intensive vegetation stage, at an interval of 14 days
Maize	3 – 5	1 treatment: at 4 – 8 leaf stage (BBCH 14–18)
Oilseed rape	3 – 5	2 treatments: in autumn one treatment from the 4–8 leaf stage (BBCH 16–25), in spring one treatment from the beginning of main shoot elongation just after winter rest (BBCH 30–40)
Cereals (especially winter wheat and barley)	4 – 5	2 treatments: in autumn one treatment from the 3 leaf stage (BBCH 13–25), in spring one treatment after winter rest until the beginning of earing (BBCH 31–50)

VitaFer[®]
S

VitaFer B

Mineral fertilizer for the intervention and preventive supply of boron.

15% B in the form of boroethanolamine.

%(m/v)

Density 1,36 kg/l

pH 7,0 – 8,0



The role of boron in crops:

- contributes to the correct growth of the root system
- influences the correct growth of the generative system
- promotes flowering, aeration and water management
- is involved in the metabolism and movement of carbohydrates in the plant
- together with potassium, it is responsible for water management in the plant
- promotes frost resistance of plants

Boron deficiencies result in:

- death of growth cones of both roots and above ground shoots
- poorer development of the vascular tissues and disturbed water balance and assimilate flow in the plant
- fruit suberization and russetting
- weakening of flower and fruit setting
- lower sugar content in roots and tubers of root crops

Recommendations for use:

- to correct boron deficiency during the growing season for intervention as well as preventive use.
- to improve rooting, flowering and pollen quality.
- for regeneration purposes when the root system is damaged by soil pests.
- to improve yield quantity and quality. Improves the storage properties of the crop.
- to ensure stable vegetative and generative growth of field and orchard plants.
- to optimise the uptake of soil nutrients such as phosphorus and potassium.

Dosage and timing of application

Crop	Dose (l/ha)	Number of treatments and application timing
Sugar beet	1-1,5	3 treatments: During intensive growth at 12-14 day intervals (BBCH 20-57)
Maize	1-1,5	2 treatments: During intensive growth at 12-14 day intervals (BBCH 20-57)
Carrots, celery	1-1,5	3 treatments: During intensive growth at 12-14 day intervals (BBCH 20-57)
Stone fruit	1	3 treatments: In the green bud stage (BBCH 50-53); from the petal drop stage (BBCH 60-69); after the harvest (BBCH 91-99)
Pome fruit	2	3 treatments: In the green bud stage (BBCH 50-53); from the petal drop stage (BBCH 60-69); after the harvest (BBCH 91-99)
Oilseed rape	1-1,5	3 treatments: in spring during intensive growth at 12-14 day intervals (BBCH 30-57)
Strawberries	2	1 treatment: Immediately before flowering and before or just after planting (BBCH 47-49)
Tobacco	1	2 treatments: During intensive growth at 12-14 day intervals (BBCH 20-57)
Brassicas	1-1,5	3 treatments: During intensive growth at 12-14 day intervals (BBCH 20-57)
Potatoes	1-1,5	2 treatments: During intensive growth at 12-14 day intervals (BBCH 20-57)

Fertilization by fertigation systems: for all crops, apply a 0,20% solution at the time of intensive growth.



VitaFer P

Mineral fertilizer for the intervention and preventive supply of phosphorus, nitrogen and potassium.

6,35% N + 25,4% P₂O₅ + 6,35% K₂O + 0,014%B + 0,01% Cu + 0,052% Fe + 0,018% Mn + 0,00127% Mo + 0,008% Zn + 0,82% SO₃

%(m/v)

Density 1,27 kg/l

pH 5,5 - 7,0



The role of phosphorus in plants:

- improved root system development and increased uptake of nutrients from the soil
- improved quality parameters of the crop, especially starch, sucrose, proteins and vitamins
- improves photosynthesis and cell respiration parameters
- increases plant resistance to lodging, freezing
- reduces the negative effects of nitrogen over-fertilization

Phosphorus deficiencies result in:

- slower growth of crops, dwarfing
- purple-pink colouring of stems and lower leaves
- slowing down of root growth
- reduction in foliation, weaker tillering
- greater susceptibility to fungal diseases and pest attack
- reduced yields of poorer quality

Recommendations for use:

- is suitable for intervention and preventive supplementation of phosphorus deficiencies as soon as they become apparent
- guarantees balanced and comprehensive plant nutrition
- supplies plants with phosphorus during periods when the natural uptake of phosphorus by the root system is impaired, e.g. by low soil temperatures
- quickly compensates for nutrient deficiencies
- improves water management in plants and increases their tolerance to drought
- increases the tolerance of plants to stresses related to the development of fungal diseases or pest damage
- stimulates the development of the root system and increases the absorption of nutrients from the soil

Dosage and timing of application:

Crop	Dose (l/ha)	Number of treatments and application timing
Fruit trees	5	3 treatments: From the green bud stage (BBCH 51) to the beginning of flowering and during the period of bud and fruit growth (BBCH 56-79)
Maize	4	2 treatments: From 3-4 leaf stage (BBCH 15-19)
Oilseed rape	4	1 treatment: In spring as soon as growth has started after the start of vegetation (BBCH 30)
Strawberries	4	3 treatments: During flowering and fruit bud growth (BBCH 60-73)
Vegetables	4	2-3 treatments: During the period of intensive growth, every 10 to 14 days

Attention: The fertilizer must not be mixed with calcium fertilizers and magnesium sulphate. Fertigation - not to exceed a concentration of 0.3%

VitaFer[®]
P

**BIOSTIMULATING
FOLIAR FERTILIZERS**

VitaFer[®]



VitaFer PowerPhos

Specialized potassium-phosphorus fertilizer with strong fungicidal/fungistatic properties.

39,44 % P₂O₅, 24,48 % K₂O

%(m/v)

Density 1,36 kg/l

pH 5,0 – 6,0

The role of phosphorus in the plant:

- improved root system development and increased uptake of nutrients from the soil
- improved quality parameters of the crop, especially starch, sucrose, proteins and vitamins
- improves the parameters of photosynthesis and cellular respiration
- increases plant resistance to lodging, freezing, effects of fungal diseases
- reduces the negative effects of over-fertilization with nitrogen

Phosphorus deficiency causes:

- slower growth rate of crops, stunting
- purple-pink coloring of the stem and lower leaves
- root growth slowdown
- reduction of foliage, weaker tillering
- greater susceptibility to fungal diseases and pest attack
- lower yields of poorer quality

The role of potassium in crop plants:

- is responsible for the quantity and quality of the crop
- participates in the regulation of nitrogen uptake
- responsible for water management in plants
- participates in building resistance to drought conditions
- promotes the development of the root system and the uptake of other nutrients from the soil
- increase the frost resistance of plants
- participates in the formation of starch and sugars.

Potassium deficiency causes:

- inability to defend against drought stress: plants lose turgor and begin to wilt
- yellowing of the leaves progressing from the edges. Over time, the leaves wilt, turn brown and die plants are smaller, with a shorter and more limpid stem
- delayed flowering, flowers are noticeably smaller
- limited tying of cobs and ears, poor grain setting

VitaFer PowerPhos



Recommendations for use:

- suitable for intervention and preventive supplementation of phosphorus and potassium deficiencies when deficiencies appear
- guarantees balanced and comprehensive plant nutrition
- supplies plants with phosphorus and potassium during periods when the natural uptake by the root system is impaired by unfavourable soil and weather conditions, e.g. low soil temperature, drought
- quickly compensates for nutrient deficiencies
- improves water management in plants and increases their drought tolerance
- increases plant tolerance to stress related to the development of fungal diseases or damage by pests. Accelerates the regeneration of damage caused by frost, diseases and pest attacks
- stimulates the development of the root system and increases the absorption of nutrients from the soil, in particular nitrogen and potassium
 - to increase resistance to diseases (e.g. potato blight)
 - to ensure proper flower bud formation, flowering and fruiting
- in order to increase the quantity and quality of the crop, improve the storage properties, e.g. vegetables and fruits.

Dosage and timing of application:

Crop	Dose (l/ha)	Number of treatments and application timing
Fruit trees	1,5	3-4 treatments: after the petals fall (BBCH 71), repeat several times every 4 weeks
Strawberries	0,25%	6-7 treatments: seedlings: immerse the roots and the center of the leaves for 15-20 min,
	1,5	Autumn: spray after harvest - end of September, Foliar: 3-4 treatments before flowering (BBCH 51-57), repeat 2-3 times until the fruits begin to take on color
	5-6	Ferigation: 1 treatment until the colors take on (BBCH 75-79)
Vegetables	1,5-2,0	3-4 treatments: after the development of 3-4 leaves (BBCH 13-14) every 10-12 days
Grapewine	1,5	2-3 treatments: before flowering (BBCH 79), at intervals of 12-14 days
Potatoes	1,5-2,0	3-4 treatments: apply from young tubers until stems are dry (BBCH 41-97), every 10-14 days

Note: The fertilizer cannot be mixed with calcium fertilizers and magnesium sulphate. Fertigation - do not exceed the concentration of 0,25%

VitaFer[®]
PowerPhos

VitaFer ALGI

Mineral and organic bio-stimulating fertilizer with macro- and micro-nutrients and seaweed extract "Ascophyllum Nodosum"

3,07% N + 2,83% K₂O + 3,69 %B + 0,98% Mn + 0,56% Zn
+ seaweed extract Ascophyllum Nodosum
+ natural growth hormones + amino acids
+ vitamins + iodine + adjuvants + EPIN

Organic matter content at least 35%

%(m/v) Density 1,23 kg/l pH 4,5 - 6,0



Recommendations for use

- To increase resistance to stress conditions (e.g. frosts during flowering or extremely high temperatures during fruit or pod ripening)
- As a preparation to encourage bees to pollinate flowers due to the specific properties of iodine, a hormone component contained in the product.
- To stimulate the flower production process and as a preparation to extend pollen viability, reduce pod breakage in oilseed rape and legumes.
- To inhibit lateral shoot pressure (recommended especially in orchards)
- For regeneration purposes after phytodamage or pest or disease pressure in any orchard or field crop.
- To increase resistance to biotic stresses caused by pest activity and fungal diseases.
- To improve the quantity and quality of the crop and improve the storage properties of fruit and vegetables.
- To increase the effectiveness of many plant protection products or reduce the need for their use.

Fertiliser qualified for use in organic farming: NE/549/2020

Recommended spray volumes for orchard crops are 500-750 l/ha for orchards and vine plantations and 400-600 l/ha for strawberry plantations.

The recommended spray volumes for vegetable crops are: 400-600 l/ha. In agricultural field crops, apply 200-400 l/ha of spray liquid.



Dosage and timing of application

Crop	Dose (l/ha)	Number of treatments and application timing
Cereals	2-3	3 treatments: in autumn – one treatment from the 3 leaf stage, in spring – 2 treatments after the start of vegetation until the beginning of earing (BBCH 31-50)
Oilseed rape	2-3	2-3 treatments: in autumn – one treatment from the 6-8 leaf stage, in spring – 1-2 treatments from the beginning of main shoot elongation just after winter rest until the beginning of flower bud development (BBCH 30-52)
Sugar beet	2-3	1 treatment from the 4-6 leaf stage to canopy closure (BBCH 16-39)
Maize	2-3	1 treatment: at the 4-8 leaf stage (BBCH 14-18)
Potatoes	3	2-3 treatments: first treatment from canopy closure to tuber setting, second and third treatment at 14-day intervals during tuber formation (BBCH 31-40)
Pome trees	2-3	1-3 treatments: the first at flowering and the next two during the period of intensive growth of primordia
Stone trees	2-3	2 treatments: the first from the start of flowering until flower petal fall (BBCH 51-69) and the second after the first pod fall (BBCH 69-81)
Strawberry	3	2 treatments: first after start of vegetation but before flowering (BBCH 10-49), second: from first bud burst to fruit setting (BBCH 60-81)
Vine	3	2 treatments: first from the 5-6 leaf stage until bud burst (BBCH 14-55), second during fruit setting until the end of fruit development (BBCH 71-89)
Tomatoes, capsicum, Cucumbers, pumpkin	2,5	2 treatments: first at the beginning of flowering (BBCH 40), second after 14 days
Carrots, onions, Leek, turnip	2,5	2 treatments: first from the 4 leaf stage (BBCH 14-16), next after 14 days

Fertilization by fertigation systems: for all crops, apply a 0.25% solution at the time of intensive growth.



VitaFer Ca

Mineral-organic fertilizer for the intervention and preventive supply of calcium in fruit and vegetable crops.

0,67% N + 20,25% CaO + 0,67% Mn + 0,67% Zn

%(m/v)

Density 1,35 kg/l

pH 5,0 – 6,0

Organic matter content: 25 (% d.m.)

The role of calcium in plants:

- Regulates enzyme activity in plant metabolic processes (growth, development, yield)
- Mitigates the effects of biotic and abiotic plant stresses
- Has a strong influence on plant cell structure and division
- Increases plant resistance to mechanical damage and damage caused by diseases and pests
- It promotes proper rooting of plants and influences the uptake of adequate amounts of water and nutrients from the soil

Calcium deficiencies result in:

- Glassy patches on young leaves, fruit and flowers
- Necrosis on leaf edges
- Dwarfing of flowers
- Dry apical rot of plants

Recommendations for use:

- To correct calcium deficiencies in plants either intervening or preventively, especially during periods when its natural uptake by the root system is impaired.
- To improve the quantity and quality of the yield and storability – better flavour, higher fruit firmness, better colouring.
- To strengthen leaf and stem structure.
- As a plant growth booster on acidified soils.
- To provide protection against dry apical rot disease, which is caused by a deficiency of calcium in the plants
- To stimulate the development of the root system by increasing the uptake of nutrients from the soil. Also as an aid against cabbage syphilis.



Dosage and timing of application:

Crop	Dose (l/ha)	Number of treatments and application timing
Pome trees	3-5	2-3 treatments: during the period of primordium and fruit growth (BBCH 69-89) until 1-2 weeks before harvest. Perform spraying at intervals of 10-12 days. Carry out a higher number of sprays when there is a high susceptibility of the variety to subcutaneous bitter spot or under conditions of increased risk of this physiological disease
Stone trees	3-5	2-3 treatments: from the onset of fruit setting (BBCH 69), at intervals of 10-14 days
Strawberry	3-5	2-3 treatments: from the onset of fruit setting (BBCH 69), at intervals of 10-14 days
Tomatoes, capsicum, cucumbers	4-5	2-3 treatments: from fruit setting (BBCH 51-69), at intervals of 14 days
Cabbage	4-5	2-3 treatments: from the beginning of head setting (BBCH 19-41), every 10-14 days.
Lettuce, endive	4-5	2-3 treatments: from the second week after sowing the seedlings (BBCH 41-45), every 10-14 days.

Attention: for spraying orchard plants, use 500-750 l/ha of water in orchards and 400-600 l/ha in strawberry plantations. The recommended water spray volumes for vegetable crops are: 400-600 l/ha

VitaFer[®]
Ca

VitaFer GREEN

Mineral-organic biostimulant fertilizer with optimal macro- and micro-nutrient and amino acid content to neutralise and prevent the effects of stress caused by disease and weather conditions.

2,66% N + 0,22% B + 0,22% Cu + 1,43% Fe + 0,55% Mn + 0,022% Mo + 0,55% Zn + natural plant bioregulators + amino acids and vitamins

%(m/v)

Density 1,11 kg/l

pH 2,5 - 4,0



*AMINOGRAM (amino acid content in g/l):

Alanine 2.9; Arginine 1.1; Aspartic acid 2.6; Glutamic Acid 2.6; Glycine 1.6; histidine 0.6; Hydroxypoline 0.4; Isoleucine 1.1; leucine 2.0; Lysine 42.7; Methionine 0.6; Phenylalanine 0.7; proline 0.9; Serine 0.8; Threonine 2.6; Tyrosine 1.2; Valine 57.1. Total 121.50g/L (12.2m/v)

The role of amino acids in crops:

- are among the most important organic compounds in the plant
- are precursors for the synthesis of plant phytohormones (growth substances)
- are a carrier of nutrients, accelerating their rate of absorption
- stimulate better utilisation of other nutrients
- reduce the content of harmful nitrates in fruit and vegetables
- as an addition to other foliar fertilizers, improve their uptake
- reduce stress after chemical plant protection treatments

Recommendations for use

- for intervention at the time of exposure to adverse factors: physiological stress, impact of pathogens, adverse weather conditions
- after the stress conditions have passed, to support the recovery process
- in order to stimulate proper development and increase yields with improved quality
- to optimise the uptake of potassium and phosphorus from the soil
- to improve the volume and quality of yields, storage properties of fruit and vegetables.

Soil fertilization (watering)

Water fruit trees once every two weeks from early spring to the end of June, using a 0.2% solution of 10l per tree at each date.

Attention: recommended spray volumes for orchard plants are: 500-700 l/ha for orchards and 400-600 l/ha for strawberry plantations.

Recommended spray volumes for vegetable crops are 400-600 l/ha. In agricultural field crops, apply 400-600 l/ha of spray.



Dosage and timing of application: Foliar fertilization

Crop	Dose (l/ha)	Number of treatments and application timing
Cereals	2-3	3 treatments: in autumn - one treatment from the 3 leaf stage (BBCH 13-25), in spring - 2 treatments after the start of vegetation until the beginning of earing (BBCH 31-50)
Oilseed rape	2-3	2-3 treatments: in autumn - one treatment from the 6-8 leaf stage (BBCH 16-25), in spring - 1-2 treatments from the beginning of main shoot elongation after winter rest until the beginning of flower bud development (BBCH 30-52)
Sugar beet	2-3	3 treatments: from the 4-6 leaf stage to canopy closure (BBCH 16-39)
Maize	2-3	1-3 treatments: at the 4-8 leaf stage (BBCH 14-18); intervention: after the stress has passed, to recover crops that have been adversely affected, e.g. frost, drought, hail, excessive soil moisture, etc.
Pome trees	2-3	3 treatments: the first at flowering and the next two during the period of intensive growth of primordia and fruit (BBCH 51-89)
Stone trees	2-3	3 treatments: first spraying at the beginning of the flowering phase, followed by two sprays during the primordia/fruit growth period (BBCH 51-89)
Strawberries	3	1-2 treatments: first spraying after the first leaves have appeared until the beginning of flowering (BBCH 10-49) and second spraying during the period of first bud break until fruit setting (BBCH 60-81)
Vegetables	2-3	1-2 treatments: from early development stages to increase resistance (BBCH 14-16)

Organic matter content of at least 70% d.m.



**SUPPORT
PRODUCTS**



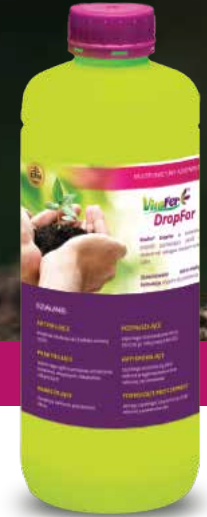
VitaFer[®]



VitaFer DropFor

Multifunctional adjuvant

50% Sorbitol monolaurate (E493) + 20%
Polyoxyethylene sorbitan monolaurate (E432)



Recommendations for use:

- to improve the quality and effectiveness of plant protection product treatments by facilitating the absorption of the various components of the spray liquid. Activating effect
- increases the effectiveness of plant protection products. Penetrating effect
- promotes systemic absorption of active substances and nutrients. Moisturising effect
- increases wetting of the leaf surface. Dispersing effect
- promotes the distribution of the spray over the entire leaf surface. Anti-foaming effect
- prevents foaming during the preparation of the spray liquid and during application. Adhesion-enhancing effect
- helps prevent the spray liquid from washing off the leaf surface.

Dosage and timing of application:

HERBICIDES

for WE and ME products

40 ml/100 l of water, minimum 100 ml/ha for small spray volumes

for glyphosate and sulfonylurea

120 ml/100 litres of water, minimum 300 ml/ha for small spray volumes

for other products

80 ml/100 l of water, minimum 200 ml/ha for small spray volumes

INSECTICIDES

for WE and ME products

40 ml/100 l of water, but a minimum of 100 ml/ha for small spray volumes

for other products

80 ml/100 l of water, but a minimum of 200 ml/ha for low spray volumes

FUNGICIDES

for systemic products

40 ml/100 l of water, minimum 100 ml/ha for small spray volumes

for contact products

80 ml/100 l of water, minimum 200 ml / ha for small spray volumes

VitaFer[®]
DropFor

VitaFer Opti pH

pH adjuster, surfactant, anti-foaming agent

3,36% N + 19,04% P₂O₅

%(m/v)

Density 1,12 kg/l

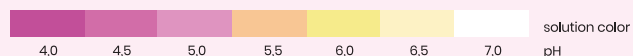
pH 2,0 - 3,0



Recommendations for use:

- an acidifier and buffer to improve the quality of the water used for foliar spraying by lowering the pH of the water and neutralising some of the dissolved salts.
- to prevent foaming of the spray liquid.
- to optimise the action of pesticides, fungicides and herbicides, where the risk of phyto-damage to crops is reduced through pH optimisation.
- to increase the availability of nutrients, especially calcium and magnesium
- to prevent precipitation and alkaline hydrolysis of active substances and compounds such as organic phosphates, natural and synthetic pyrethroids and biological insecticides

Colometric Scale



Dosage and timing of application:

Crop	Dose (l/ha)	Number of treatments and application timing
All plants at early stages of development	100-120*	During fungicide and insecticide treatments carried out in the early stages of plant development to strengthen the root system and seedlings
Ornamental flowers	100-120*	During fungicide and insecticide treatments carried out after transplanting and before flowering
Leafy vegetables	100-120*	During fungicide and insecticide treatments two weeks after transplanting/sprouting.
Tomato, pepper	100-120*	During fungicide and insecticide treatments carried out before flowering and at fruit setting
Melon, watermelon, cucumber	100-120*	During fungicide and insecticide treatments carried out two weeks after transplanting/plant germination and before flowering
Orchard plants	100-120*	During fungicide and insecticide treatments carried out two weeks after transplanting/plant germination and before flowering
Grapes	100-120*	During fungicide and insecticide treatments carried out two weeks after transplanting and before flowering
Field and industrial crops	100-120*	During fungicide and insecticide treatments carried out in accordance with the plant chemical protection plan

* in the case of water with a strongly alkaline pH, the maximum dose should not exceed 200 ml/100l of water.

VitaFer[®]
Opti pH

VitaFer PERFECT CLEAN

Cleaning fluid for sprayers

Benzenesulfonic acid, alkyl derivative of ethanolamine, 2-aminoethanol, etidronic acid, ethoxylated long chain alcohol (C10), 1- methoxy-2- propanol, sodium hydroxide



Recommendations for use:

- the product is designed for cleaning sprayers, removing pesticides and other residues, including oily, sticky fluids from the tank, adjusters, pipelines, filters and nozzles. Removes stubborn, sticky and greasy deposits, surfactant residues and dissolves hard deposits.
- the product removes residues of sulphonylurea, carfentrazone and growth regulators, azole residues, carfentrazone. Deactivates chemical residues.
- the product is easily biodegradable and does not accumulate in the soil- the washings can be poured onto the field.
- the product does not cause corrosion of the sprayers and is safe for the operator.

Dosage and timing of application:

Dosage:	
For cleaning the inside of the sprayer	250-300 ml/100 l of water
For cleaning filters, nozzles	30-50 ml/10 l of water
For cleaning the outside of the sprayer	30-50 ml/10 l of water

VitaFer[®]
PERFECT CLEAN

VitaFer®





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