

COMPO EXPERT

EXPERTS
FOR GROWTH



Liquid Fertilizers for Sports Turf Vitality



Vitanica®



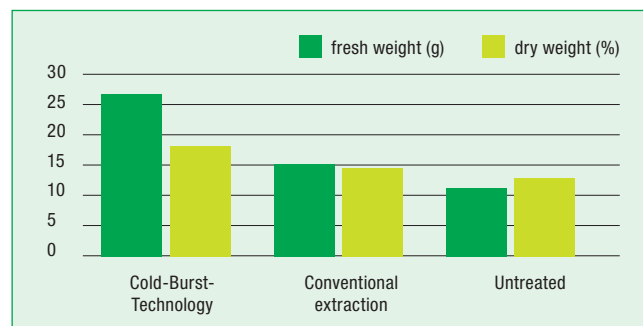
General Aspects

- All Vitanica® products are based on extracts from kelp seaweed (*Ecklonia maxima*)
- *Ecklonia maxima* is sustainably harvested from the shores of South Africa; it is carefully cold-pressed using “Cold-Cellular-Burst-Technology” which preserves the integrity of the phytoactive substances (chemical and thermal extraction methods are known to denature many important constituents)
- These phytoactive substances have both a nutritional and biostimulation effect on the growth, colour and vigour of the roots and the sward

Contents of *Ecklonia maxima*

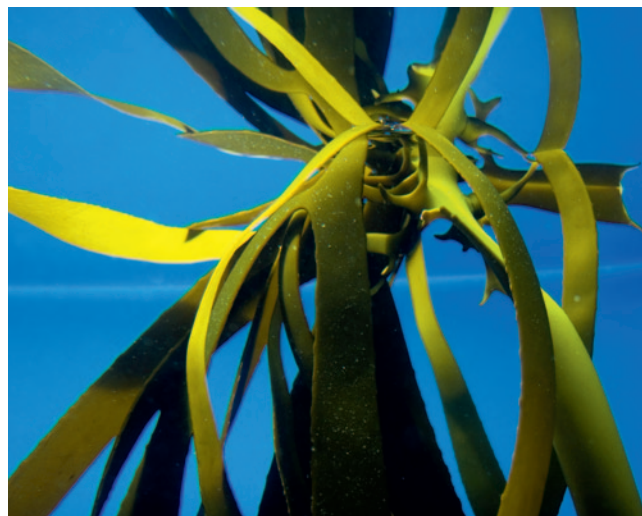
Phytohormones Vitamins	Amino acids	Mineral nutrients	Further ingredients
Auxine: Indol-3-acetic acids (IES) and 2 other derivatives Cytokinin: several variations Vitamins: A B1, B2, C, E Niacin	Glycine Alanine Valine Leucine Isoleucine Serine Treonine Tyrosine Lysine Aspartic acid Proline and others	Potassium Nitrogen Phosphorus Magnesium Sulphur Calcium Iron Manganese Copper Zinc Molybdenum and others	Proteins Alginates Carbohydrates

Effect of cold-pressed *Ecklonia maxima* and conventionally extracted seaweed on perennial ryegrass yield



Dr. A. Hunter, Belfast University, 2009, Lolium perenne trial

- Turf vitality and tolerance to both abiotic and biotic stresses such as heat, drought, mowing and pathogens are increased



Auxins:

Phytohormones with specific effects on root development.

Cytokinins:

Phytohormones with specific effects on cell division and in combination with other plant hormones, cytokinins influence photosynthesis, plant defence mechanisms and mortality.

Amino acids/Vitamins:

Amino acids are the pre-cursors for many plant cell components such as proteins and phytohormones. Vitamins support enzymatic activity and other important metabolic processes.

Carbohydrates:

Polysaccharides help the plant to absorb water and to increase stress tolerance.

Liquid Fertilizer Programme

Portfolio

Product	NPK formula	Specific application target
Vitanica® MC	11+3+7 + Mn+Cu	Trace element supply
Vitanica® P ³	5+0+10+ Phosphonate	Prevention of fungal diseases
Vitanica® Si	5+3+7+Silicon	Preparation of fine tournament golf greens
Vitanica® RZ	5+0+5+Bacteria	Root stimulation and healthy soil biology

Vitanica® MC



11 % N
 1.5 % N Nitrate-N
 9.5 % N Carbamide-N
 3 % P₂O₅
 7 % K₂O
 0.05 % Cu*
 0.1 % Fe*
 0.5 % Mn*
 * fully EDTA chelated

Application rate: 10–30 l/ha in 600–800 l water

- Vitanica® for “Nutrition”
- Organo-mineral NPK-fertilizer with trace elements
- Incl. kelp extracts
- Improves colour, vigour and health of turf

Vitanica® P³



5 % N
 5 % N Carbamide-N
 10 % K₂O
 0.01 % B
 0.003 % Cu*
 0.02 % Fe*
 0.01 % Mn*
 0.001 % Mo*
 0.002 % Zn*
 * fully EDTA chelated

Application rate: 10–30 l/ha in 600–800 l water

- Vitanica® for “Disease Control”
- Organo-mineral NPK-fertilizer with trace elements
- Incl. kelp extracts
- Increase resistance to fungal diseases by Phosphonates



Vitanica® P³ stimulates root growth, left: treated, right: untreated
 (University of Applied Science, Erfurt)

Vitanica® Si

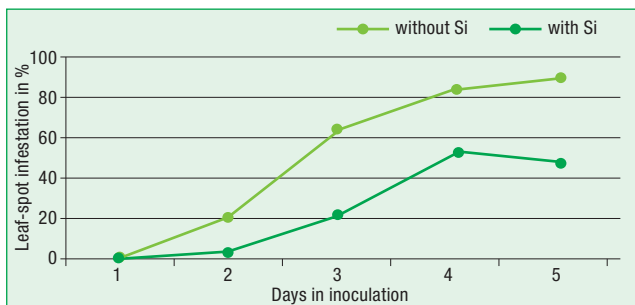


5 % N
5 % N Carbamide-N
3 % P_2O_5
7 % K_2O
1.8 % Na
Silicate concentration: 10 % SiO_3

Application rate: 10–20 l/ha in 600–800 l water

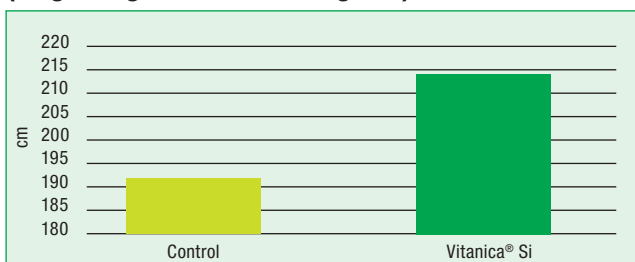
- Vitanica® for “**Cell Wall Fortification**”
- Organic-mineral NPK-fertilizer with silicate and seaweed extract
- Silicate to strengthen the cell structures
- Increase of plant tolerance against biotic and abiotic stress
- Improved putting characteristics of high quality golf greens

Influence on of Silicon on leaf-spot in Bermuda grass



Datnoff and Rutherford, 2004

Stimpmer measurement (length of golf ball travel on green)



COMPO EXPERT R&D Center, 2013

Vitanica® RZ

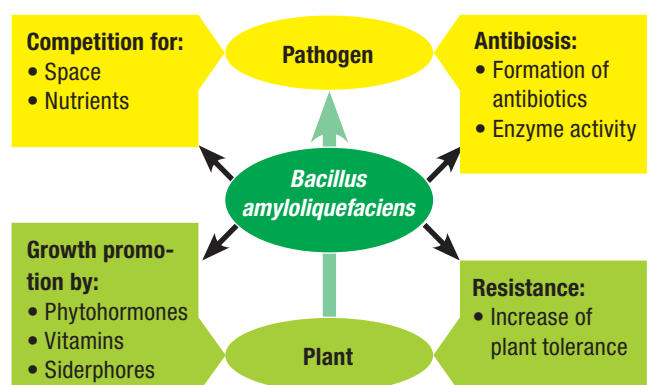


5 % N
1.5 % N Nitrate-N
3.5 % N Carbamide-N
5 % K_2O

Application rate: 20 l/ha in 600–800 l water, ideally followed by 3 mm of irrigation

- Vitanica® for “**Disease Prevention**”
- Organic-mineral NK-fertilizer with *Bacillus amyloliquefaciens*, selection R6-CDX® and kelp extract
- Bacillus suppressing soil-borne fungi and promotion of healthy germination and root growth
- Application in well aerated soil and at temp > 10°C
- Also effective in new sowings and overseedings

Effect of *Bacillus amyloliquefaciens*



Recommendation for Application

- Vitanica® is best used preventatively
- For best results, applications should be made above 10°C and in well aerated soil
- Irrigation 3–4 hours after application facilitates transport of bacteria into the rooting zone
- All Vitanica® products perfectly supplement the general fertilizer programme

Recommendations for mixed applications in turf grass

	Vitanica® MC	Vitanica® P ³	Vitanica® Si	Vitanica® RZ
Vitality/ Colour	10 l/ha	20 l/ha		10 l/ha
Disease Prevention	10 l/ha	30 l/ha		
Disease/ Heat/ Stress Tolerance		10 l/ha	20 l/ha	
Turf health/vigour		10 l/ha		20 l/ha

- Recommended application volume 800l/ha
- Addition of wetting agent KICK® is possible (2.5–5 l/ha) for a better sward penetration in dry conditions
- Combination of all Vitanica® products with Basfoliar® Ferro Top® SL is possible for additional colour and growth improvement





Product	Composition	Characteristics	Packing	Use
Vitanica® MC	11 % N, 1.5 % NO ₃ -N, 9.5 % NH ₂ -N, 3 % P ₂ O ₅ , 7 % K ₂ O, 0.05 % Cu, 0.1 % Fe, 0.5 % Mn	"Nutrition" Compound liquid organo-mineral NPK-fertilizer with kelp extracts. For the foliar fertilization of high quality turf grass, also suitable for fertilization of trees and shrubs.	Canister: 10l	10–30l/ha in 600–800l water/ha
Vitanica® P3	5 % N, 5 % NH ₂ -N, 10 % K ₂ O, 0.01 % B, 0.003 % Cu, 0.02 % Fe, 0.01 % Mn, 0.001 % Mo, 0.002 % Zn	"Disease Control" Compound liquid organo-mineral NK-fertilizer with kelp extracts. For the foliar fertilization of high quality turf grass, also suitable for fertilization of trees and shrubs.	Canister: 10l	10–30l/ha in 600–800l water/ha
Vitanica® Si	5 % N, 5 % NH ₂ -N, 3 % P ₂ O ₅ , 7 % K ₂ O, 1.8 % Na, 10 % SiO ₃	"Cell Wall Fortification" Combined organo-mineral NK liquid fertilizer with silicate and kelp extracts for revitalization and strengthening of the plants. For the foliar fertilization of high quality turf grass, also suitable for fertilization of trees and shrubs.	Canister: 10l	10–20l/ha in 600–800l water/ha
Vitanica® RZ	5 % N, 1.5 % NO ₃ -N, 3.5 % NH ₂ -N, 5 % K ₂ O	"Disease Prevention" Combined organo-mineral NK liquid fertilizer with the effective rhizosphere bacterium <i>Bacillus amyloliquefaciens</i> , selektion R6-CDX® and kelp extracts for revitalization and strengthening of the plants. For the fertilization of high quality turf grass, also suitable for fertilization of trees and shrubs.	Canister: 10l	20l/ha in 600–800l water/ha