TERRA OPTIMA AG · Switzerland
TERRA OPTIMA ASIA LTD · Hongkong

In Cooperation with
RECIRCINVEST BIOTECH CO. LTD. · Xiamen

and
ZHANG ZHIWEN ACADEMY · Nanjing

HUMUS
THE GOLD OF OUR EARTH

"Mankind will become conscious of the 'Biological Age' or it will perish."

Erhard Hennig - one of the great German humus researchers

腐殖质，地球的黄金

“人类将意识到'生物时代'，否则它将会灭亡。”

Erhard Hennig - 德国著名的腐殖质研究人员之一

DRILL THE WELL BEFORE YOU GET THIRSTY.

毋临渴而掘井。

HUMIVERSE® - A PURE ORGANIC MATERIAL TO BETTER THE WORLD
HUMIVERSE® -一种纯有机的腐植酸可以让世界变得更好

HUMIVERSE®

HUMIVERSE® is a 100% pure organic material in powder form and feed quality. It contains approx. 80% of pure Humic Acid and approx. 20 % of pure Fulvic Acid. The main toxic heavy metals are below the detection limit. **HUMIVERSE®** is a German product and is obtained from renewable vegetable raw materials. It is not a product from the Leonardite of lignite or hard coal.

HUMIVERSE®是一种100%纯有机材料，呈粉末状和饲料质量。 它包含约80%的纯腐植酸和约20%的纯黄腐酸。 主要的 有毒重金属含量均低于检测限。
HUMIVERSE®是德国产品，由可再生的蔬菜原料中 提炼而成，而不是来自于风化褐煤或硬煤

In combination with organic fertilizers or other organic materials, **HUMIVERSE®** can cultivate soils poor in humus and make them suitable for agricultural cultivation. Humic Acid, which intensively supports the formation of humus, is the most important basis for the vitalisation of arid soils. By isolating organic and inorganic pesticides, hydrocarbon compounds and chelating heavy metals in agriculture and fish farming, it helps to detoxify natural resources. Humic and Fulvic Acids have often been found to have a conditioning effect that can stimulate the body's defences in plants and animals.

与有机肥料或其他有机材料相结合，**HUMIVERSE®**可以改善贫乏的土壤使其适合农业种植。 腐殖酸和富里酸强烈支持腐殖质的形成，是干旱土壤活化的最重要基础。 在农业和 养鱼业中腐殖酸可以分离有机和无机农药，碳氢化合物以及螯合重金属，帮助自然 资源去除有毒物质。 腐殖酸具有调节作用，可以促进植物和动物体内的免疫能力

HUMIVERSE® will not only open up new possibilities in agriculture up to the coating of seeds, but also in animal and fish breeding far-reaching changes will occur with the use this first absolute clean and organic material. The Future of Farming is here! Since **HUMIVERSE®** converts itself with metal salts in simple chemical processes to the respective humates, new cost-effective possibilities are also opening up for industrial use.

HUMIVERSE®给种子加了一层保护膜不仅仅给农业发展带来了新的机遇，并且在动物和鱼类养殖中也将因为使用这种绝对清洁和有机的腐植酸而产生深远变化。 农业的未来就在这里，**HUMIVERSE®**通过简单的化学工艺将金属盐转化为相应的腐殖质，在工业用途上也将因此产生新的成本效益。

QUALITY AND TECHNICAL STANDARDS
品质和技术标准

HUMIVERSE® is produced under German standards and is a German product.
HUMIVERSE® is subject to continuous quality control by the manufacturer and independent laboratories. The organic raw material results in tolerances in production, which, however, lie within precisely defined limits.
HUMIVERSE® is in the process of Bio-Certification for the European Market.
The product is not humate!

HUMIVERSE®是按照德国标准生产的德国产品。
HUMIVERSE®由制造商和第三方实验室负责质量控制。 生产过程中每个批次有机原材料的差异一直在精确的限定标准范围内。
HUMIVERSE®正在进行欧洲市场的生物认证。
该产品不是腐植酸盐！

Technical information to **HUMIVERSE®**
HUMIVERSE®技术参数

Humic / Fulvic Acid content 腐殖酸含量	97%
Ash content +600° 灰分	<3%
Solid content +105° 固含量	65,5%
pH	2,5-4,5m (10% solution 10%溶液)
Nitrogen 氮	2836 ppm
Copper 铜	1,2 ppm
Calcium 钙	40 ppm
Magnesium 镁	61 ppm
Potassium 钾	160 ppm
Phosphor 磷	38 ppm
Sulphur content 硫含量	<3%
Upper/lower flammability 易燃范围	30g/m3
Or explosive limits 或爆炸极限	
Storage 贮存	6 months, cold and dry, +5°-+35° 6个月，阴凉干燥

Eurofins Ltd. R.: AR-19-AN-001049-01 欧陆检测
DIN EN 13667

Aluminium 铝	Al	33
Arsen 砷	As	<0,8
Barium 钡	Ba	<2,0
Beryllium 铍	Be	<0,2
Lead 铅	Pb	<2,0
Cadmium 镉	Cd	<0,2
Kalium 钾	K	90
Copper 铜	Cu	<1,0
Nickel 镍	Ni	<1,0
Mercury 汞	Hg	<0,07
Vanadium 钒	V	<1,0
Zinc 锌	Zn	4

CERTIFICATE LUFA
LUFA 证书

LUFA is the German Agricultural Research Institut and international highly well reputated. It is also the certification office for new products like fertilizers in agriculture and fisheries.

LUFA是国际知名的德国农业研究所。它也是新产品的认证办公室，例如农业和渔业中的肥料。

HUMIVERSE® will set standards with regard to the purity of the product and, derived from this, the extreme binding capacity of the mass of colloidal material. Most pollutants are at the limit of detectability.
However, the statements to date on **HUMIVERSE®** are rather theoretical in nature, as no such pure Humic and Fulvic Acid has been used in scientific tests to date.

HUMIVERSE®将根据产品的纯度制定标准并且从此出发，适用于大部分的胶质材料。大多数污染物都有可检测极限。
但是，到目前为止**HUMIVERSE®** 还是理论上的，因为迄今为止还没有把这种高纯度的腐植酸和富里酸用于科学试验

Institut für Düngemittel und Saatgut

LUFA NORD-WEST

LUFA Postfach 10 06 55 31756 Hameln

Terra Optima AG
Herrn Heiko Petermann
Rathausstraße 14
CH – 6430 Baar

检查报告

Order-No. -
Lab.-No. DD 1901006
Page 1 of 3

Hameln, 28.05.2019 /we
information: Dr. Paradies-Severin
telephone: 05151/9871-53

定性检测:(根据送样者的申明)	Humiverse® Lfd.-Nr. 1001	
类型/数量:	1074 g incl. package	
收样日期:	10.04.2019	包装: 塑料瓶
检测开始日期:	10.04.2019	
检测结束日期 日期	28.05.2019	
生产:		Sampler: H. Petermann (sampling by client)
运输:		
取样:	08.04.2019	

Parameter		Declaration	Result in original	Result in dry matter
干燥品 方法: VDLUFA II.1, 15.2.1; 2014; #6	%		73,39	
总氮 方法: VDLUFA II, 3.5.2.7; 1995	%		<0,1	
P2O5 (可溶矿物酸) 方法: DIN EN ISO 11885 (E 22); 2009-09	%		<0,01	
K2O (可溶矿物酸) 方法: DIN EN ISO 11885 (E22); 2009-09	%		0,03	
镁 (MgO) 方法: DIN EN ISO 11885 (E22); 2009-09	%		0,05	
sulfur (可溶矿物酸) 方法: DIN EN ISO 11885 (E22); 2009-09	%		1,47	
中和值 (CaCO3) 方法: VDLUFA II.1, 6.3; 1995	%		<0,01	
中和值 (CaO) 方法: VDLUFA II.1, 6.3; 1995	%		<0,01	
有机物质 (灼烧损失) 方法: VDLUFA II.1, 10.1; 2014; #6	%		73	
氯化物 方法: DIN 38405-D 1; 1985-12; #6	%		<0,2	

转换: 1 % = 10.000 mg/kg

„<...“ = 低于操作范围的检测下限
#1 = LUFA Standort OL, Jägerstr. 23-27; #2 = LUFA Standort OL, Ammerländer Heerstr. 121; #3 = LUFA Standort OL, Ammerländer Heerstr. 115-117; #5 Untersuchung erfolgte durch Fremdlabor; #6 – not subject to quality control requirements
检测结果根据送达的样品。未经LUFA Nord-West, Hameln公司的许可不得擅自复印该检测报告

Institut für Düngemittel und Saatgut

LUFA NORD-WEST

Lab.-No. DD 1901006 of 28.05.2019 Page 2 of 3

Parameter		Declaration	Result in original	Result in dry matter
硼 方法: DIN EN ISO 11885 (E22); 2009-09	mg/kg		20,4	
铁 方法: DIN EN ISO 11885 (E22); 2009-09	mg/kg		61	
钴 方法: DIN EN ISO 17294-2 (E 29); 2005-02	mg/kg		<0,10	
铜 方法: DIN EN ISO 11885 (E22); 2009-09	mg/kg		2	
锰 方法: DIN EN ISO 11885 (E22); 2009-09	mg/kg		28	
钼 方法: DIN EN ISO 17294-2 (E 29); 2005-02	mg/kg		0,21	
硒 方法: DIN 38405-23; 1994-10	mg/kg		<0,20	
锌 方法: DIN EN ISO 11885 (E22); 2009-09	mg/kg		9	

conversion: 1 % = 10.000 mg/kg

„<...“ = 低于操作范围的检测下限
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检测结果根据送达的样品。未经许可不得擅自复印该检测报告

Institut für Düngemittel und Saatgut

LUFA NORD-WEST

Lab.-No. DD 1901006 of 28.05.2019 Page 3 of 3

重金属 (DüMV Anlage 2, Tab. 1.4)		Result in original	Result in dry matter
砷 方法: DIN EN ISO 17294-2 (E 29); 2005-02	mg/kg		<0,10
铅 方法: DIN EN ISO 17294-2 (E 29); 2005-02	mg/kg		<1
镉 方法: DIN EN ISO 17294-2 (E 29); 2005-02	mg/kg		0,10
铬 方法: DIN EN ISO 11885 (E22); 2009-09	mg/kg		<2
铬 VI 方法: DIN 38405-D 24; 1987-05; #5	mg/kg		<0,3
镍 方法: DIN EN ISO 11885 (E 22); 2009-09	mg/kg		2,73
汞 方法: DIN EN 1483 (E 12); 2007-07	mg/kg		<0,01
铊 方法: DIN EN ISO 17294-2 (E 29); 2005-02	mg/kg		<0,01

备注:

Dr. Inge Paradies-Severin, laboratory manager

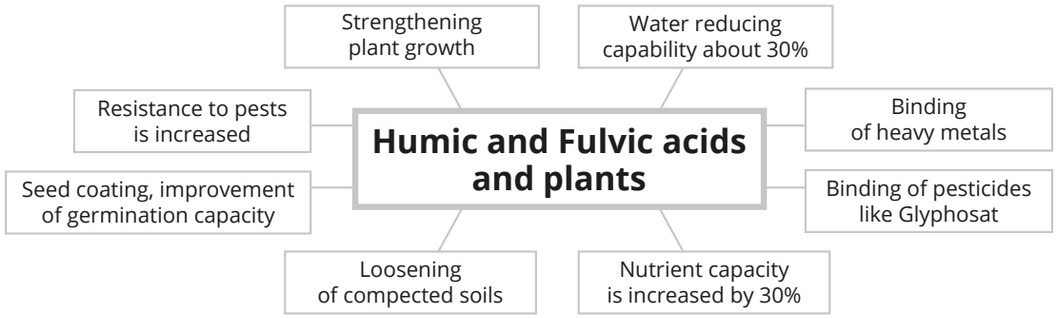
转换: 1 % = 10.000 mg/kg

„<...“ = 低于操作范围的检测下限
#1 = LUFA Standort OL, Jägerstr. 23-27; #2 = LUFA Standort OL, Ammerländer Heerstr. 121; #3 = LUFA Standort OL, Ammerländer Heerstr. 115-117; #5 Untersuchung erfolgte durch Fremdlabor; #6 – not subject to quality control requirements
检测结果根据送达的样品。未经许可不得擅自复印该检测报告

AGRICULTURE · 农业

To feed the world's population, it is increasingly necessary to develop arable land in arid regions. But the arable land used to date has also suffered a drastic loss of vital substances and has become increasingly salty due to the use of chemical fertilizers. The loss of humus, the essential component for plant life, is dramatic. Humic Acids and Fulvic Acids are indispensable components of organic substances and fertilizers for the formation of humus and thus the vitalization of soil.

为了养活世界人口，越来越有必要在干旱地区开发耕地。但目前耕地土壤中的重要物质也因为使用化学肥料遭受到了大量流失，并且盐化越来越严重。腐殖质，植物体内重要成份也大量流失。腐殖酸和富里酸是有机物质和肥料中不可缺少的成分，可以形成腐殖质，从而促进土壤的活化。



YOU SEE A TOMATO BUT WHAT IS IN?

你看到的西红柿但是你知道里面有什么吗

This is what you eat! 这就是你吃的

Vitamin and mineral content of the Tomato

	1954	2003	Changes
Natrium	125	5	-96%
Kalium	315	235	-25%
Magnesium	51	11	-88%
Calcium	43	10	-87%
Kupfer	60	59	-2%
Riboflavin	200	19	-90%
Thiamin	120	37	-69%
Niacin	650	595	-8%
Vitamin C	50	13	-74%
Vitamin A	550	42	-92%
Vitamin E	1200	540	-55%

G, mg, micro g for 100g, Source: Bavarian State Office for Food Safety

LOSS OF VITAL SUBSTANCES IN VEGETABLES

蔬菜中流失的重要物质

Mineral content of vegetables and fruits (mg/100mg)

Vegetables	1930 Ca	1980 Ca	1930 Mg	1980 Mg	1930 Fe	1980 Fe	1930 Cu	1980 Cu	1930 Na	1980 Na	1930 K	1980 K	1930 P	1980 P
Beetroot	24,9	20	15	11	0,37	1	0,07	0,02	84	66	303	380	32,1	51
Brussels Spr.	28,7	26	19,6	8	0,66	0,7	0,05	0,02	9,6	6	515	450	78,4	77
Cabbage	72,3	68	16,8	6	1,23	0,6	N	0,01	28,4	3	240	270	64,1	46
Carrots	48	25	12	3	0,56	0,3	0,08	0,01	95	25	224	170	21	15
Celery	52,2	41	9,6	5	0,61	0,4	0,11	0,72	137	60	278	320	31,7	21
Lettuce	25,9	28	9,7	6	0,73	0,7	0,15	0,01	3,1	3	208	220	30,2	28
Mushrooms	2,9	6	13,2	9	1,03	0,6	0,64	0,05	9,1	5	467	320	136	80
Mustard	65,9	50	27,3	22	4,54	1	0,12	0,03	19	19	337	110	65,5	33
Onions	31,2	25	7,6	4	0,3	0,3	0,08	0,05	10,2	3	137	160	30	30
Parsley	325	200	52,2	23	8	7,7	0,52	0,05	33	33	1080	760	128	64
Parsnips	54,8	41	22,4	23	0,57	0,6	0,10	0,08	16,5	10	342	450	69	74
Peas	15,1	21	30,2	34	1,88	2,8	0,23	0,02	0,5	1	342	330	104	130
Potatoes	7,7	5	24,2	17	0,75	0,4	0,15	0,02	6,5	7	568	360	40,3	37
Pumpkin	39	29	8,2	10	0,39	0,4	0,08	0,01	1,3	0	309	130	19,4	19
Runner Beans	33,3	33	23	19	0,74	1,2	0,09	0,01	6,5	0	276	220	25,9	34
Radishes	43,7	19	11,4	5	1,88	0,6	0,13	0,01	59	11	240	240	27,1	20
Swedes	56,4	53	10,8	9	0,35	0,1	0,05	0,01	52,2	15	136	170	19	40
Tomatoes	13,3	7	11	7	0,43	0,5	0,10	0,01	2,8	9	288	250	21,3	24
Turnips	58,8	48	7,4	8	0,37	0,2	0,07	0,01	58	15	238	280	27,5	41
Watercress	222	170	17	15	1,62	2,2	0,14	0,02	60	49	314	230	52	52

N: No data available

LOSS OF VITAL SUBSTANCES IN FRUITS
水果中流失的重要物质

Loss of vital substances in fruits

Fruits	1930 Ca	1980 Ca	1930 Mg	1980 Mg	1930 Fe	1980 Fe	1930 Cu	1980 Cu	1930 Na	1980 Na	1930 K	1980 K	1930 P	1980 P
Apricots	17,2	15	12,3	11	0,37	0,5	0,12	0,06	N	2	320	270	21,3	20
Bananas	6,8	6	41,9	34	0,41	0,3	0,16	0,10	1,2	1	348	400	28,1	28
Blackberries	63,3	41	29,5	23	0,85	0,7	0,12	0,11	3,7	2	208	160	23,8	31
Cherries	15,9	13	9,6	10	0,38	0,2	0,07	0,07	2,8	1	275	210	16,8	21
Cooked Apple	3,6	4	2,9	3	0,29	0,1	0,09	0,02	21	2	123	88	16,2	7
Eating Apple	3,6	3	4,7	3	0,29	0,1	0,11	0,02	2,4	3	118	100	7,7	8
Grapes	11,7	13	5,3	7	0,34	0,3	0,09	0,12	1,7	2	283	210	19	18
Grapefruit	17,1	23	10,4	9	0,26	0,1	0,06	0,02	1,4	3	234	200	15,6	20
Lemons	107	85	11,6	12	0,35	0,5	0,26	0,26	6	5	163	150	20,7	18
Melon cantal.	19,1	20	20,1	11	0,81	0,3	0,04	0	13,5	8	319	210	30,4	13
Nectarines	3,9	7	12,6	10	0,46	0,4	0,06	0,06	9,1	1	268	170	23,9	22
Oranges	41,3	47	12,9	10	0,33	0,1	0,07	0,05	2,9	5	197	150	23,7	21
Passion fruit	15,6	11	38,6	29	1,12	1,3	0,12	N	28,4	19	348	200	54,2	64
Peaches	4,8	7	7,9	9	0,38	0,4	0,05	0,06	2,7	1	259	160	18,5	22
Pears	7,5	11	7,2	7	0,21	0,2	0,15	0,06	2,3	3	128	150	9,7	13
Pineapple	12,2	18	16,9	16	0,42	0,2	0,08	0,11	1,6	2	247	160	7,8	10
Plums	12,4	13	7,6	8	0,33	0,4	0,10	0,10	1,9	2	192	240	15,4	23
Raspberries	40,7	25	21,6	19	1,21	0,7	0,21	0,10	2,5	3	224	170	28,7	31
Rhubarb	103	93	13,6	13	0,40	0,3	0,13	0,07	2,2	3	425	290	21	17
Strawberries	22	16	10	10	0,71	0,4	0,13	0,07	1,5	6	161	160	23	24

N: No data available

HUMUS,
THE GOLD OF OUR EARTH

腐殖质，地球的黄金

Our Earth needs 1000 years to built a thin layer of Humus
We have the solution – HUMIVERSE® TERRA
The Future of Farming

我们的地球需要1000年才能建造一层薄薄的腐殖质
我们有解决方案 – HUMIVERSE® TERRA
农业的未来

Our ancestors called humus the "Old Power". They knew the connection between healthy soil and diseases, a connection that we have forgotten today. HUMUS is a biological functional performance and not a substance. HUMUS is an essential part of life and the trend towards biologically rich food is an important step in the fight against many diseases.

"Humus is created from life by life for life."
Raoul Francé

我们的祖先称腐殖质为“古老的力量”。 他们知道健康的土壤和疾病之间的关系，这种关系我们现在已经遗忘了。
腐殖质是一种生物功能，而不是一种物质。 腐殖质是生命中不可或缺的一部分，生物学上丰富的食物的是对抗许多疾病的重要部分。

„腐殖质来源于生命体并服务于生命体“
Raoul Francé

WHAT IS **HUMIVERSE® TERRA?**
HUMIVERSE® TERRA是什么

HUMIVERSE® TERRA is an unique organic fertilizer for universal plant growing. The substrate is a fertilizer with highly humus-forming effect and can be used to force plant growing and revive barren soils.

HUMIVERSE® TERRA是一种独特的有机肥料，适用于植物生长。
基质是具有高腐殖质形成效果的肥料，可用于促进植物生长和恢复贫瘠的土壤。

HUMIVERSE® TERRA

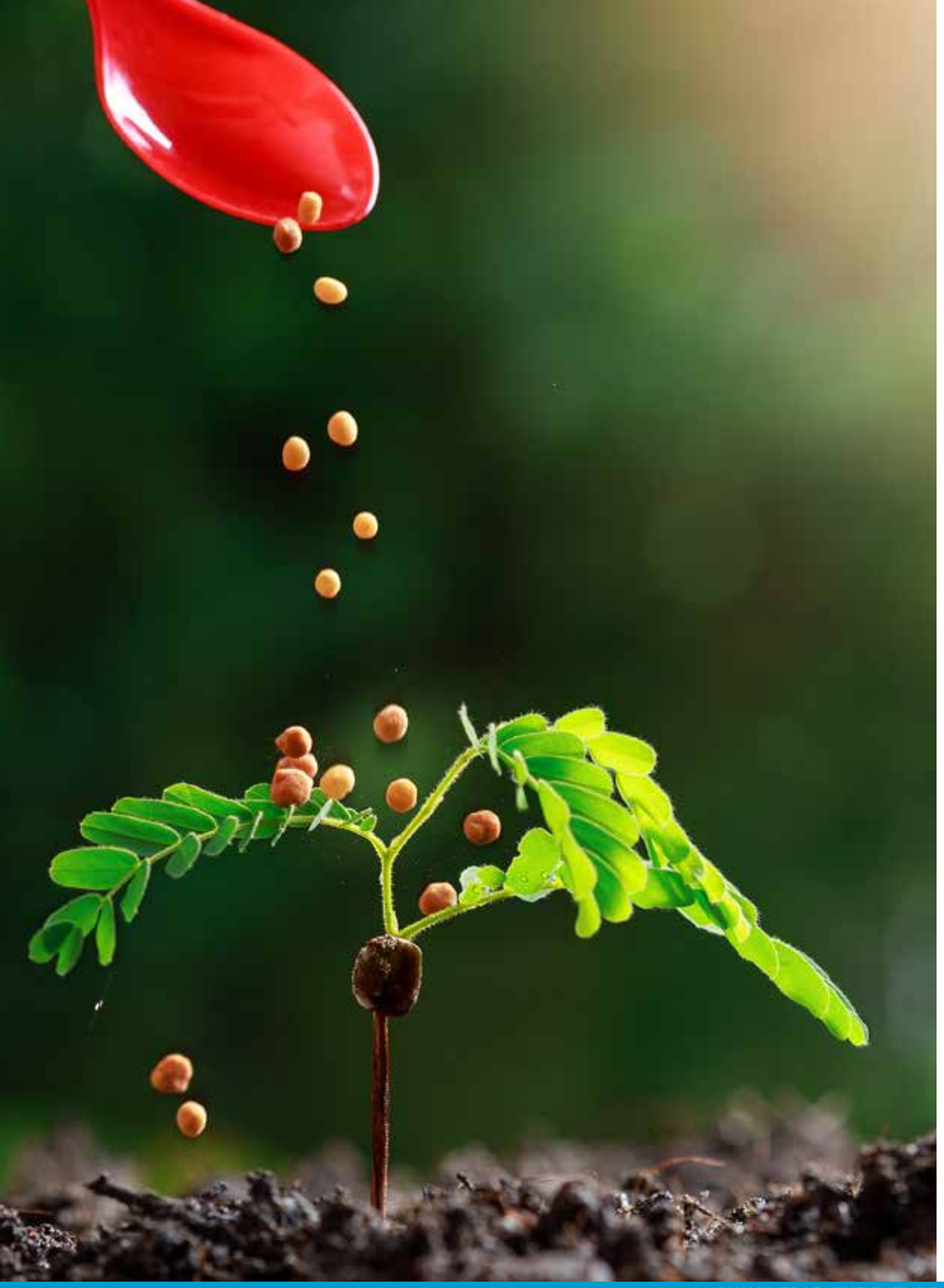
- 5% Pure organic - **HUMIVERSE®**
  5%有机 - **HUMIVERSE®**
- 90% Organic BioAgenasol
  90% 有机BioAgenasol
- 5% Zeolith Clino
  5% Zeolith Clino

HUMIVERSE® is a pure organic Humic Acid (80%) and pure organic Fulvic Acid (20%), made from natural organic Materials and plants (no use of contaminated Leonardit !!!!)

The organic fertilizer BioAgenasol is a highly efficient mixture of mash products with a high proportion of yeast biomass, low-sugar residual molasses, a nitrogen-rich by-product of potato starch production (PNC) and a mineral-rich suspension of maize starch (CSL).

HUMIVERSE®是一种纯有机物质，其中腐植酸（80%），富里酸（20%），由天然的有机材料和植物制成 (不使用受污染的Leonardit !!!!)

有机肥BioAgenasol是一种高效混合的糊状物
产品具有高比例的酵母生物量，低糖糖蜜残留 ，富含氮的马铃薯淀粉产品和富含矿物质的玉米淀粉（CSL）悬浮液。



Zeolith Clino is a natural aluminium-silicate and shows a high purity with 90% Clinoptilolite. It shows an extremely high porosity and cationic exchange capacity. It is approved in agriculture as binding and separating agent.

Zeolith Clino是一种天然的硅酸铝，斜发沸石的含量高达90%。 它显示出极高的孔隙率和阳离子交换容量。 它在农业上被批准作为粘合剂和分离剂。

The fertilizer is GMO-free and suitable for organic farming.

这个化肥是非转基因产品适用于有机农业

Zeolith Clino

lithos natural

LithoFeed

Feed additive 1g568 according to Regulation (EG) 651/2013
Equates to Regulation (EG) 834/2007 and can be used in organic farming (authorized with (EU) 505/2012).

LithoFeed is a natural aluminium-silicate. It shows an extremely high porosity and cationic exchange capacity. It is approved in agriculture as binding and separating agent and improves the technological properties of the feed.

MINERALOGY	Clinoptilolite [%]	90
	Calcite, Mica, Clay minerals [%]	9-10
	Quartz, Feldspar	in traces
PHYSICAL PROPERTIES	Density [kg/dm³]	1,4
	Hardness [Mohs]	4
	pH-Value DIN ISO 787/9	7-8
	Bulk density [g/cm³]	0,70
	Pore size [nm]	0,40
EXCHANGE CAPACITY	Cationic exchange capacity [meq/100g]	103
	Ammonium-nitrogen adsorption capacity [NH_4-N, mg/g]	11
SPECIFIC SURFACE AREA	m²/g	400-600
PARTICLE SIZE DISTRIBUTION	Topcut (d98%) [µm] DIN 66165	180
	Median particle size (d50%) [µm]	20
CHEMICAL PROPERTIES [%]	SiO_2	67-72
	Al_2O_3	11-14
	CaO	3-6
	K_2O	1-4
	MgO	0,5-1,5
	Fe_2O_3	0,8-1,7
	Na_2O	0,2-1,5
	TiO_2	< 0,2
	SO_3	< 0,1
	P_2O_5	< 0,1
	L.O.I. DIN 51081 at 1050°C	6-12
	Moisture ex works DIN ISO 787/2 [%]	< 6,0

These data are presented in good faith, as typical values of these products. They are not to be considered as binding.

Ennsdorf, 26.02.2019 Rev.6

Management system certified according to:

Lithos Natural GmbH
A-4462 Ennsdorf
Industriestraße Straße 2/8
tel +43 (0) 7223 881 61-0
fax +43 (0) 7223 881 61-15
email office@lithosnatural.at
web www.lithosnatural.at

BioAgenasol

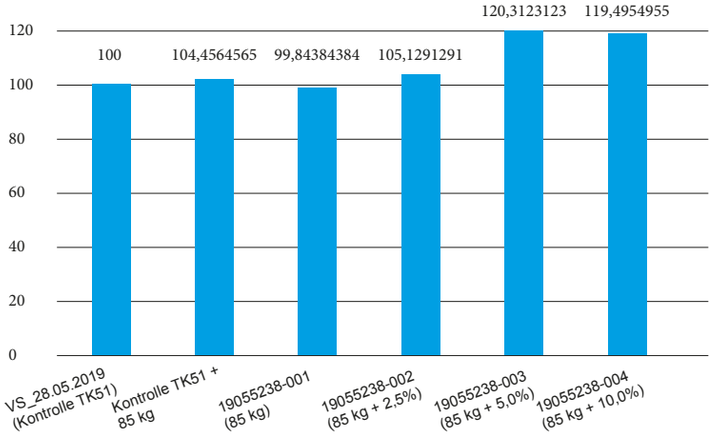
Organic substances TS	90%
Total-N	5,5%
Total Phosphor (P2O5 total)	2,5%
Potassium (K2O total)	1,5%
Bulk density	550g/l
Water content	12%
Raw ash	6%
Calcium oxide (CaO)	0,15%
Magnesium oxide (MgO)	0,6%
Natrium oxide (NaO)	1%
Free from chlorides	<0,5%

The analytical values are subject to natural fluctuations and are therefore only to be regarded as guide values.

Institut für Nachhaltige Pflanzenproduktion
Spargelfeldstraße 191, 1220 Wien, Austria

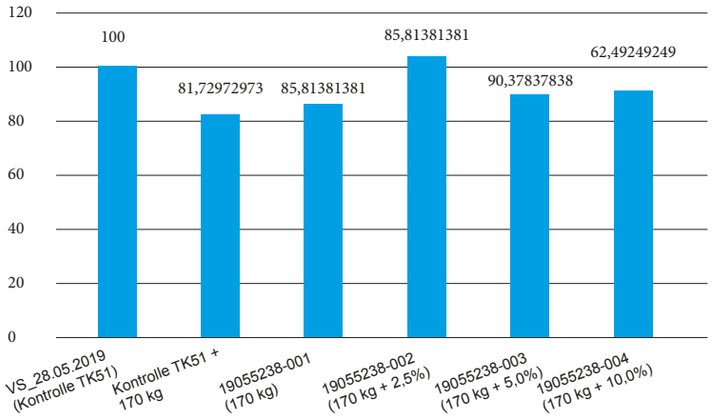
VS_28.05.2019 (Control TKS1)		6,83	7,04	6,99	6,89	6,94	100,00
Control TKS1 + 85 kg	Fertilizer Ammoniumnitrate 35 % - 85 kg	6,75	7,59	7,40		7,25	104,46
Control TKS1 + 170 kg	Fertilizer Ammoniumnitrate 35 % - 170 kg	4,62	6,09	6,30		5,67	81,73
19055218-001 (85 kg)	Fertilizer BioAgenasol - 85 kg	6,65	6,70	7,43		6,93	99,84
19055218-002 (85 kg + 2,5 %)	Fertilizer BioAgenasol + Humic acid „Humiverse“ 2,5 % - 85 kg	7,23	7,63	7,02		7,29	105,13
19055218-003 (85 kg + 5,0 %)	Fertilizer BioAgenasol + Humic acid „Humiverse“ 5,0 % - 85 kg	8,75	8,04	8,25		8,35	120,31
19055218-004 (85 kg + 10,0 %)	Fertilizer BioAgenasol + Humic acid „Humiverse“ 10,0 % - 85 kg	9,03	7,67	8,17		8,29	119,50
19055218-001 (170 kg)	Fertilizer BioAgenasol - 170 kg	5,86	6,10	5,90		5,95	85,81
19055218-002 (170 kg + 2,5 %)	Fertilizer BioAgenasol + Humic acid „Humiverse“ 2,5 % - 170 kg	5,83	6,48	6,50		6,27	90,38
19055218-003 (170 kg + 5,0 %)	Fertilizer BioAgenasol + Humic acid „Humiverse“ 5,0 % - 170 kg	5,95	6,20	6,33		6,16	88,79
19055218-004 (170 kg + 10,0 %)	Fertilizer BioAgenasol + Humic acid „Humiverse“ 10,0 % - 170 kg	6,61	6,20	6,44		6,42	92,49

Addition of humic acid (product "Humiverse") in the ratios 2.5 %, 5.0 % and 10.0 % into BioAgenasol at 85 kg N/ha nitrogen



The results show a positive trend compared to the control with an increase of biomass with addition of humic acid (product "Huminverse") into BioAgensol in the mixing ratios of 2.5 %, 5.0 % and 10.0 %. With the ratio of > 5% humic acid, no obvious increase in biomass yield can be detected. At < 5%, mineral fertilization (ammonium nitrate, NH4NO3) seems to limit the effect of humic acid. There was a basic fertilization with 85 kg / ha N nitrogen.

Addition of humic acid (product "Humiverse") in the ratios 2.5 %, 5.0 % and 10.0 % into BioAgenasol at 170 kg N/ha nitrogen



The positive trend does not appear for the fertilization with 170 kg N / ha nitrogen. The decrease of biomass can be observed for all conditions in comparison to the control. A surplus of nitrogen can be assumed as reason. It seems that the negative effect of the surplus dominate, nevertheless there seems to be a slight upward trend within the mixing ratios.

Austrian Institute for Sustainable Plant Production certificates 10% more growth with **HUMIVERSE®**

奥地利可持续植物生产研究所证明，使用**HUMIVERSE®**可使作物生长提高10%

Institut für Nachhaltige Pflanzenproduktion
Spargelfeldstraße 191, 1220 Wien, Austria

VS_28.05.2019 (Control TKS1)		6,83	7,04	6,99	6,89	6,94	100,00
Control TKS1 + 85 kg	化肥 硝酸铵 35 % - 85 kg	6,75	7,59	7,40		7,25	104,46
Control TKS1 + 170 kg	化肥 硝酸铵 35 % - 170 kg	4,62	6,09	6,30		5,67	81,73
19055218-001 (85 kg)	化肥 BioAgenasol - 85 kg	6,65	6,70	7,43		6,93	99,84
19055218-002 (85 kg + 2,5 %)	化肥 BioAgenasol + 腐殖酸 „Humiverse“ 2,5 % - 85 kg	7,23	7,63	7,02		7,29	105,13
19055218-003 (85 kg + 5,0 %)	化肥 BioAgenasol + 腐殖酸 „Humiverse“ 5,0 % - 85 kg	8,75	8,04	8,25		8,35	120,31
19055218-004 (85 kg + 10,0 %)	化肥 BioAgenasol + 腐殖酸 „Humiverse“ 10,0 % - 85 kg	9,03	7,67	8,17		8,29	119,50
19055218-001 (170 kg)	化肥 BioAgenasol - 170 kg	5,86	6,10	5,90		5,95	85,81
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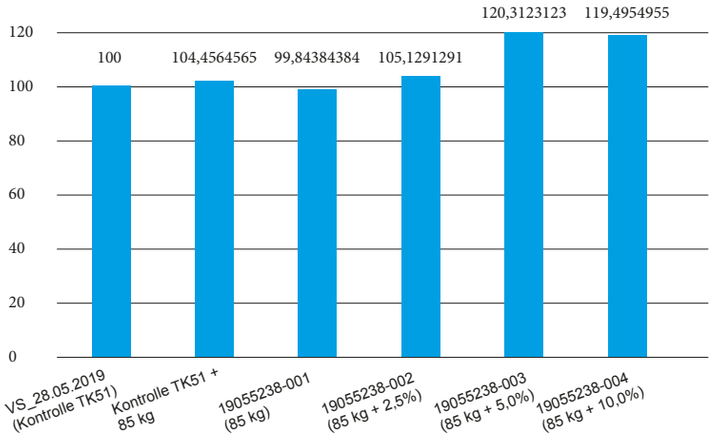
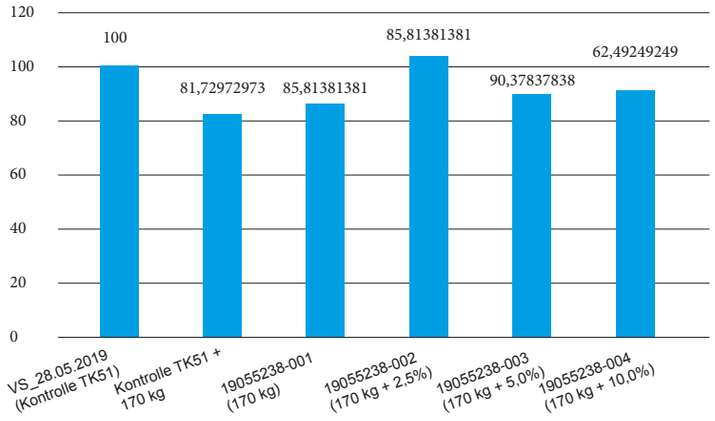
19055218-004 (170 kg + 10,0 %)	化肥 BioAgenasol + 腐殖酸 „Humiverse“ 10,0 % - 170 kg	6,61	6,20	6,44		6,42	92,49

将额外比例2.5%， 5.0%， 10.0%的腐殖酸（产品 “Humiverse”）
放入85KG BioAgenasol中， N/ha 氮



结果表明，在BioAgensol中按照2.5%，5.0%， 10.%的比例额外加入腐殖酸（产品“Huminverse”）对控制生物量的正常呈积极趋势。 当腐殖酸的比例> 5%时，未检测到生物量产量的明显增加。 在<5%时，矿物肥料（硝酸铵，NH4NO3）似乎限制了腐殖酸的作用。 基本的施肥量是85千克/公顷的 N 氮气

将额外比例2.5%， 5.0%， 10.0%的腐殖酸（产品 “Humiverse”）
放入170KG BioAgenasol中， N/ha 氮



对于170 kg N / ha氮的施肥，没有出现积极趋势。 与参照物相比，在所有条件下都可以观测到生物量的减少。 过剩的氮可以假定是造成此结果的原因。似乎盈余的负面影响占主导地位，但因为不同的混合比率似乎略有上升趋势

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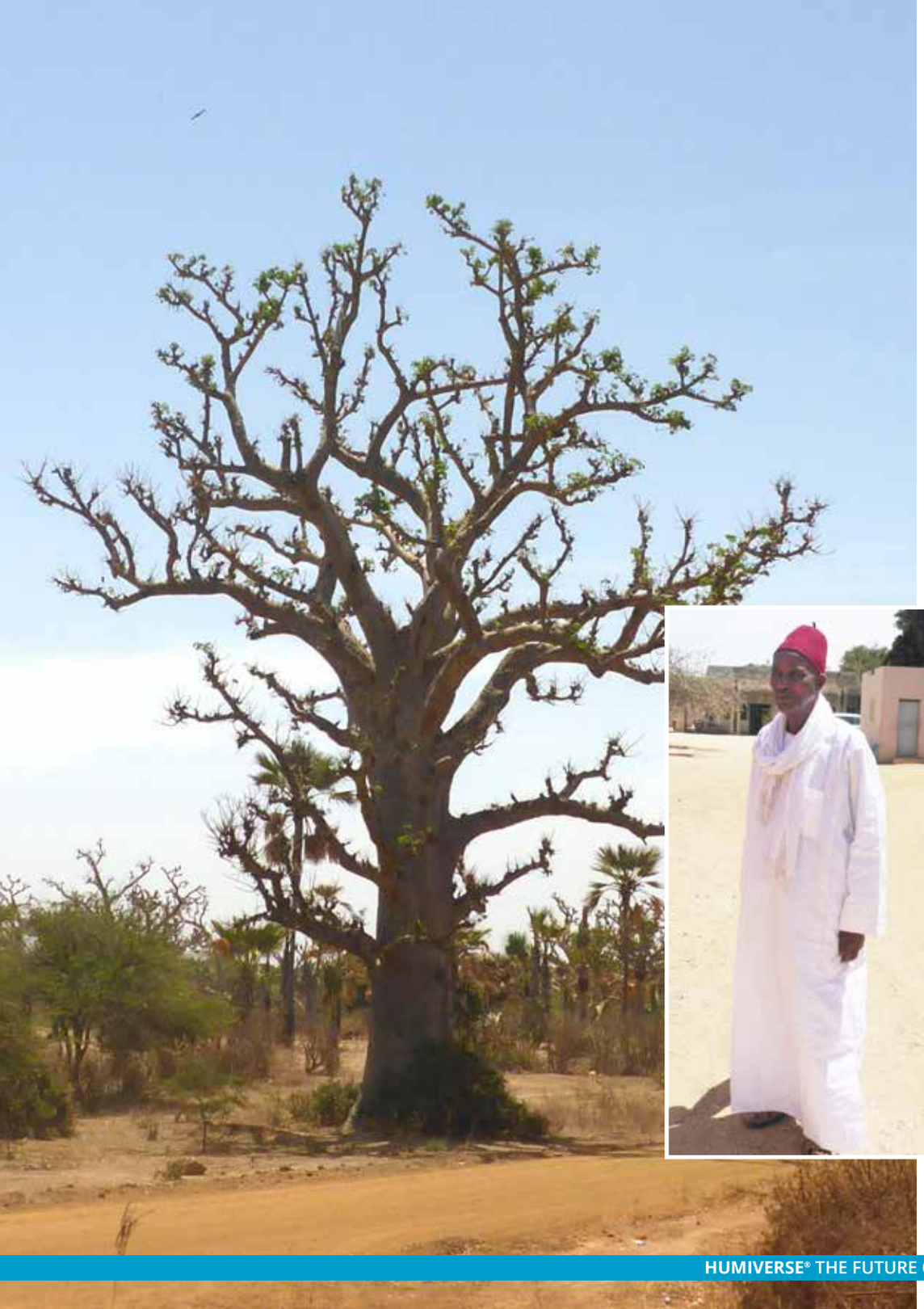
奥地利可持续植物生产研究所证明，使用 HUMIVERSE®可使作物生长提高10%

THE SENEGAL-PROJECT
SENEGAL项目

In cooperation with the Institut Sénégalais de Recherches Agricoles (ISRA) and the farmers association ROPPA Swiss company Terra Optima Inc. supports the organic agricultural production in two farms with free delivery of **HUMIVERSE® TERRA**, a high effective organic fertilizer on arid soils.

与ISRA机构和农民协会ROPPA合作，瑞士公司Terra Optima Inc.赞助免费提供 **HUMIVERSE® TERRA**一种适用于干旱土壤的高效有机肥，在两个农场进行有机农业种植。



Pictures taken in Senegal, May 2019

THE DUBAI-PROJECT
DUBAI迪拜项目

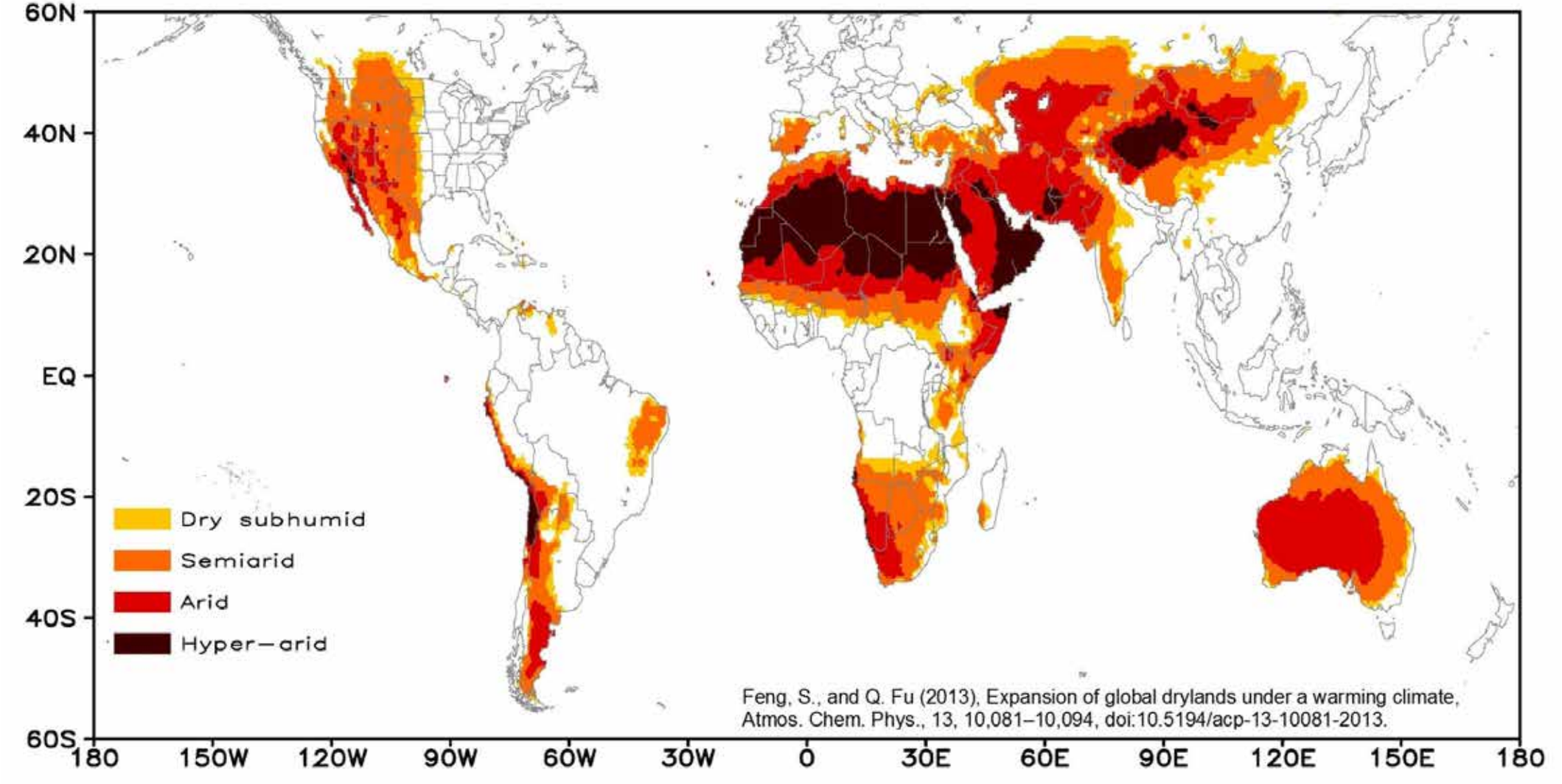
Terra Optima Inc. is supporting a greening project in the Emirate of Dubai. The novel organic fertilizer **HUMIVERSE® TERRA** with the addition of pure organic Humic and Fulvic acid will be used in a nursery to build 60 greenhouses of 500 square meters each. **HUMIVERSE® TERRA** is a slow-release fertilizer that not only promotes plant growth, but also saves about 30% water, which is available to plants during stress phases such as longer dry periods.

Terra Optima 公司正在参与支持阿布扎比酋长国附近波斯湾岛屿的绿化项目。 添加纯有机的腐植酸和和富里酸的新型有机肥HUMIVERSE® TERRA将用于苗圃建造60个温室，每个温室 500平方米。 HUMIVERSE® TERRA是一种缓释肥料，不仅可以促进植物生长，还可以节约约30%的水，这些水可以在特殊时期(如较长的干旱期)供植物使用。

Pictures taken in Dubai, May 2019

GREEN THE WORLD - EXPANSION OF GLOBAL DRYLAND UNDER WARMING CLIMATE

绿化地球-气候变暖导致干旱土地不断增加



MAKE THE DESERT GREEN
将沙漠变绿洲

In order to assure a continuous food supply to the ever-growing world population, it should become an increasingly high priority to convert all available areas, especially those in arid regions, into clean, efficient and perpetual farm land.

为了确保向不断增长的世界人口提供持续的粮食供应，将所有可用土地，特别是干旱地区的可用土地转变为清洁，高效和永久的农田，是目前当务之急需要做的事情。

However, a large proportion of the agricultural land already in use today has so far experienced a drastic loss of vital substances and is becoming continuously and increasingly salty due to the use of chemical fertilizers.

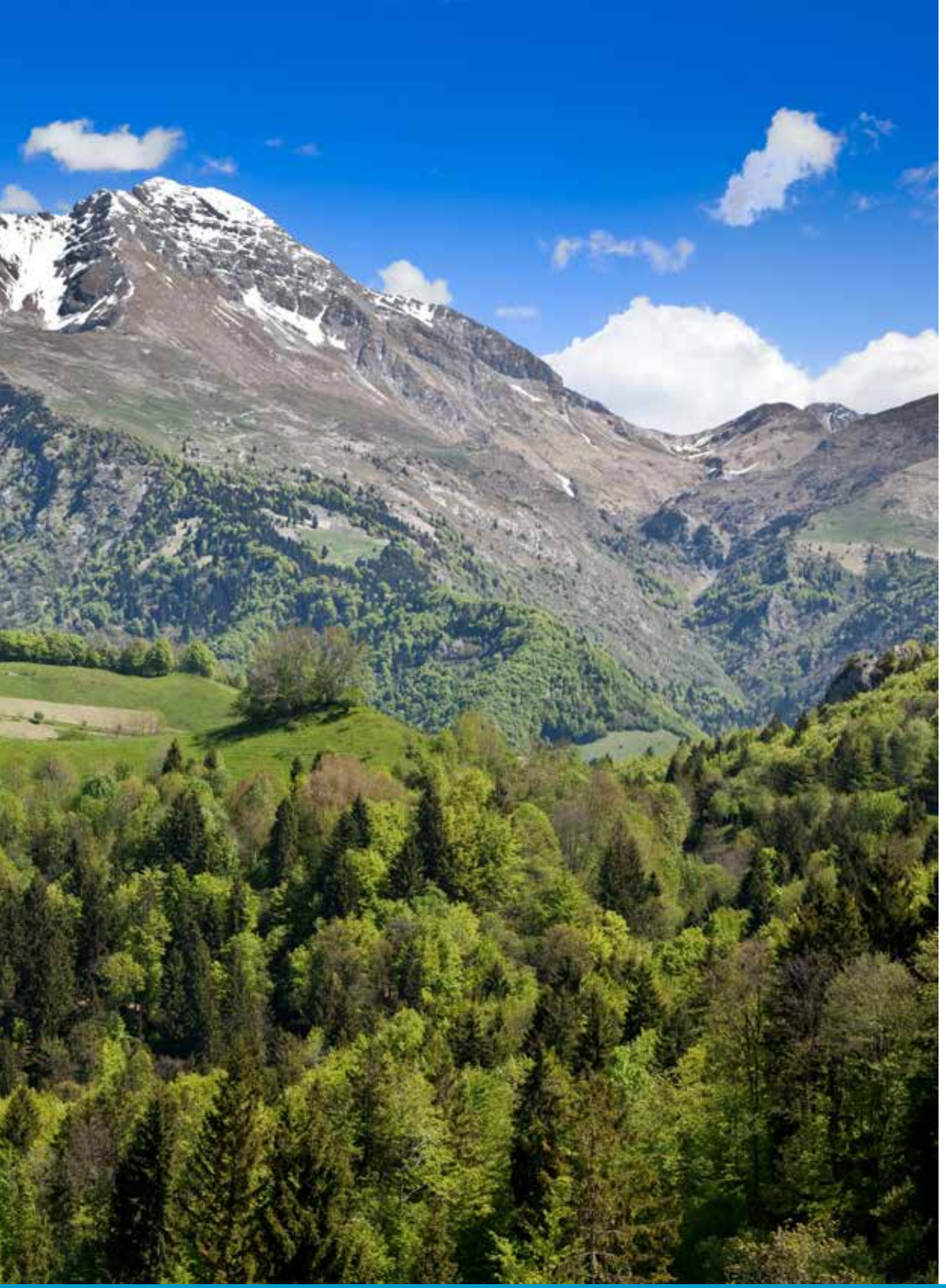
然而，迄今为止已经使用的大部分农业用地土壤里的重要物质大量流失，并且由于使用化学肥料导致土壤盐化日趋严重。

The lack of humus, arguably the most important component of flora and fauna, is dramatic. Humic Acids and Fulvic Acids are an indispensable component for the formation of humus as an organic substance and fertilizer for increasing and sustainable soil performance.

腐殖质，这一动植物最重要的组成成份的大量缺乏。 腐殖酸和富里酸是腐殖质作为有机物质和肥料形成的必不可少的组成部分，用于增加和维持土壤的性能。

Pictures taken in Northern Shanxi, China, 2018

图片拍摄于2018年陕西北部地区



REFORESTATION PROGRAMMES IN THE AUSTRIAN ALPS

奥地利阿尔卑斯山的造林计划

Organic Fertilizer application in forests was subject of an international symposium in Mayerhofen i. Z. in March, 1994. The contributions cover historical aspects of forest deterioration, the role of nutritional disturbaces in forest decline, the present status of forest soils in Austria, the effects of the application of organic fertilizers on forest ecosystem processes (trees, soil biology, soil chemistry and seepage water chemistry), the use in high altitude afforestation and the feasibility of fertilization in forests.[1]

Surprisingly, the extraordinarily positive scientific results of these experiments did not lead to any further measures by different reasons. These are caused by difficult locations of the forests in the high mountains, a problematic intervention in the alpine ecosystems and certainly also financial aspects.

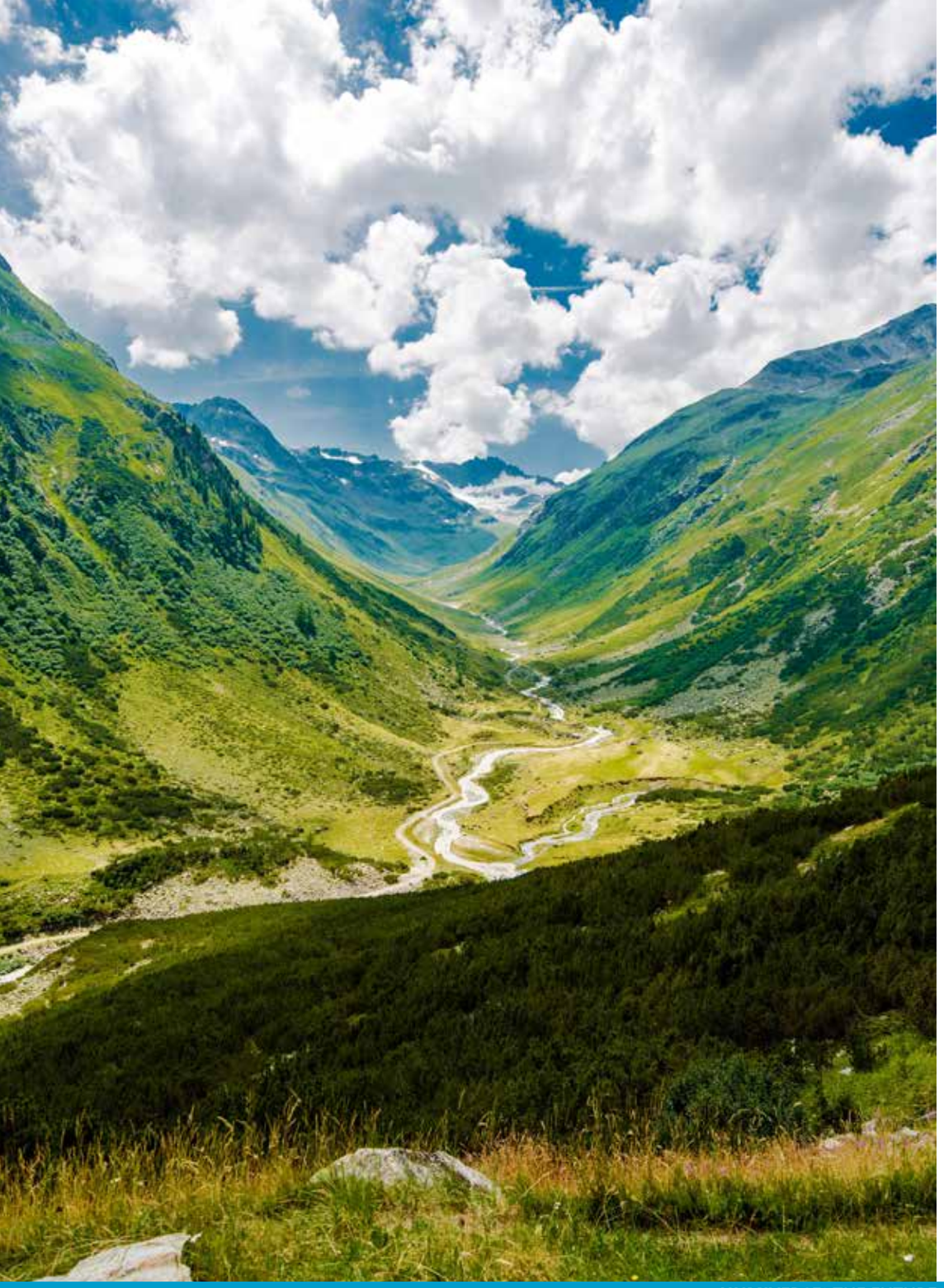
有机肥在森林中的应用是1994年3月在Mayerhofen i Z.国际研讨会上的讨论主题。内容包括森林退化的历史因素，奥地利森林土壤的现状，有机肥料对森林生态系统过程的影响（树木， 土壤生物学，土壤化学和渗水化学），在高原造林中的应用和森林施肥的可行性。

令人惊讶的是，这些实验得出的具有建设性的科学结果因为各种原因并没有得到进一步的实施。 这些原因包括因为森林地处高山位置险峻，高山生态系统的影响及资金方面的问题。

Weißbacher, Joseph - USE OF ORGANIC FERTILIZERS FOR A FORESTATIONS IN HIGH EVELATION FORESTS

Weißbacher, Joseph在高海拔森林中使用有机肥料的森林

[1]ORGANIC FERTILIZATION IN FORESTS; FEASIBILITY AND EFFECTS OF ITS APPLICATION, Results of a symposium in Mayerhofen i. Z., March 1994, University of Vienna, Austria



REFORESTATION PROGRAMMES IN THE AUSTRIAN ALPS
奥地利阿尔卑斯山的造林计划

Dr. Naschberger, Stefan:

Ecological evaluation of organic forest fertilzers
有机森林肥料的生态评估

“The fertilizer experiment „Gressensteinalm“, situated in the Kitzbühler Alps of northern Tyrol, was established above the actual timber line in 1986. The experiment deals with the effects of an organic fertilizer („Bactosol“) and of oxidic magnesium fertilizers on the growth and establishment of Norway spruce (Picea abies) in afforestations. ln 1990 following results could be evaluated: (1) Growth of fertilized plots was substantially improved. (2) A transplanting shock associated with depressed growth was only observed in unfertilized plots. (3) An average dose of 300g of the organic fertilizer, either alone or in combination with crude magnesite, proofed to be the best treatment. (4).”

“肥料实验”Gressensteinalm“位于蒂罗尔州北部的Kitzbühler阿尔卑斯山，于1986年建立在森林线之上。该实验研究了有机肥（”Bactosol“）和氧化镁肥对生长的影响。 在绿化中建立挪威云杉（Picea abies）。 1990年得到如下评估结果：（1）施肥地块的生长得到了显着改善。 （2）仅在未施肥的地块中观察到与生长抑制相关的移植性休克。 （3）平均剂量为300克有机肥，单独或与粗菱镁矿结合使用，证明最有效果。（4）“。

THE FUTURE OF ORGANIC FERTILIZER HUMIVERSE® TERRA

有機化肥的未來 HUMIVERSE® TERRA

The mention of such an old research report will be astonishing, as it has long since been extended by modern research. It should be noted, however, that research is often not translated into general practice due to restrictions imposed by the authorities and, above all, financial support. For this reason, the authors have presented this 30 year old state of amazing research here.

In particular **HUMIVERSE® TERRA** offers according to the opinion of the scientists involved an excellent fertilizer for the afforestation in arid areas, in addition, on humus-poor soils in the high mountains. Especially the promotion of growth and root formation with the help of mycorrhizae is a basic building block for successful plant growth.

提到如此古老的研究报告将是令人惊讶的，因为它早已被现代研究所延伸。 然而，应该指出的是，由于当局施加的限制，以及最重要的是财政支持，研究往往没有转化为实际操作。 鉴于这个原因，作者在这里展示了这个有着30年历史的惊人研究。

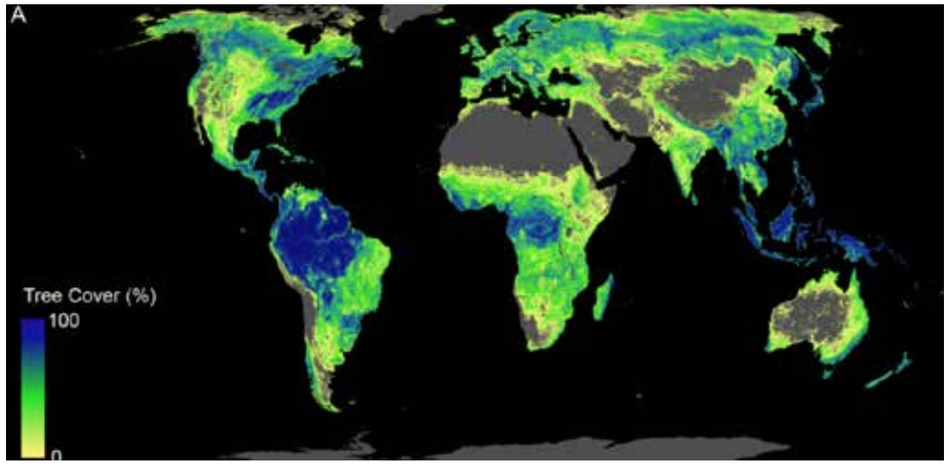
特别是**HUMIVERSE®TERRA**根据科学家的意见提供了针对干旱地区植树造林，尤其是高山腐殖质贫瘠的土壤的优质肥料。 在菌根的帮助下促进生长和根系形成是植物成功生长的基础和关键。

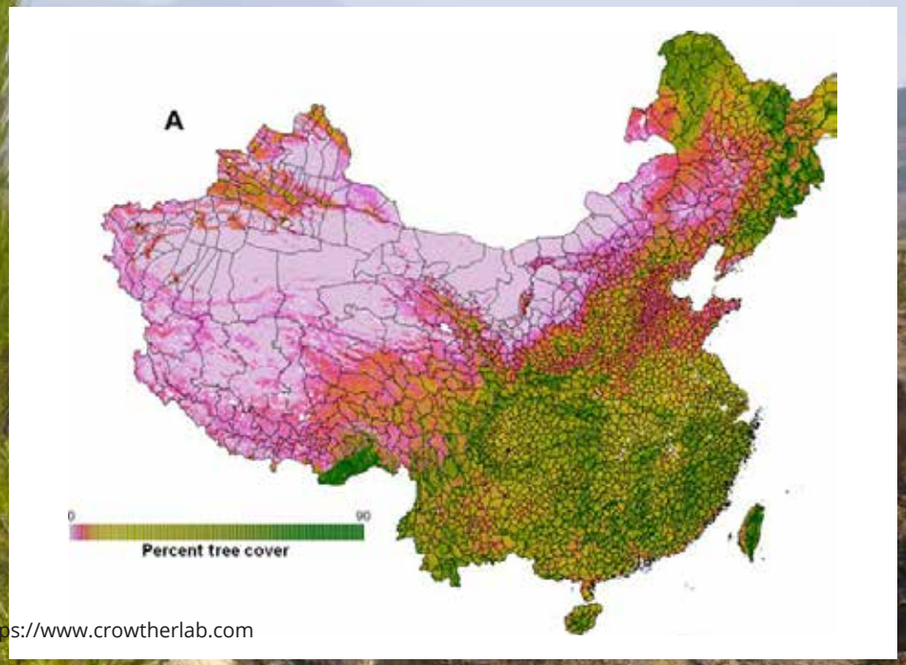
MAKE OUR FUTURE GREEN AGAIN

让我们的未来再次变绿

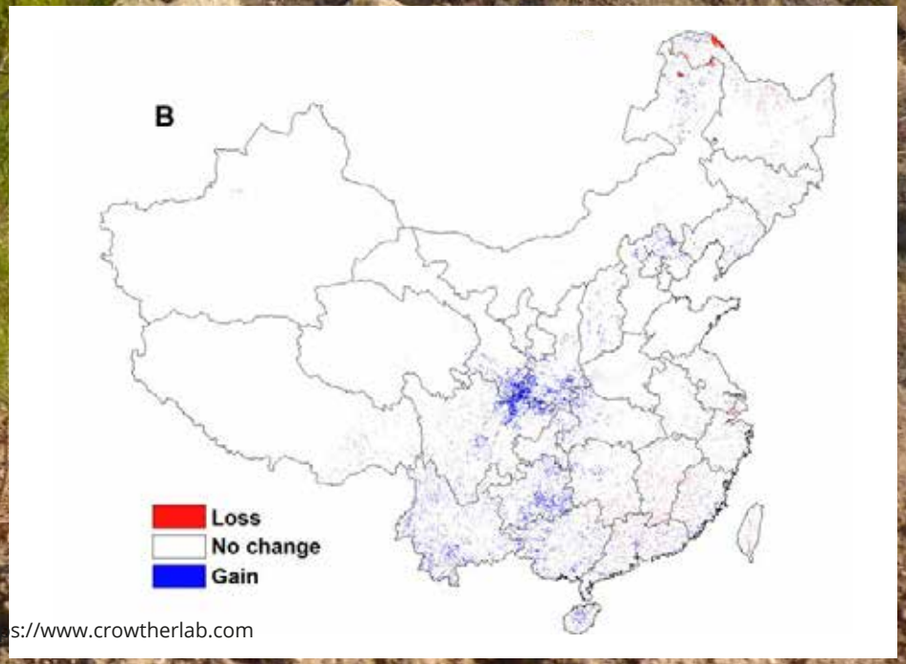
Forest loss is one of the most pervasive land surface transformations on Earth, with drastic effects on global climate, ecosystems, and human well-being. As part of biodiversity conservation and climate change mitigation efforts, many countries, including China, have been implementing large-scale policies to conserve and restore forests. One of the largest forest conservation programs in the world is the Chinese Natural Forest Conservation Program (NFCP). Results indicate that forest cover has significantly increased in around 1.6% of China's territory.

森林消失是地球上最普遍的陆地表面变化之一，对全球气候，生态系统和人类产生了巨大影响。 作为生物多样性保护和减缓气候变化努力的一部分，包括中国在内的许多国家一直在大规模实施保护和恢复森林的政策。 中国天然林保护计划（NFCP）是世界上最大的森林保护计划之一。 结果表明，森林覆盖率显着增加，约占中国境内的1.6%。





https://www.crowtherlab.com



s://www.crowtherlab.com

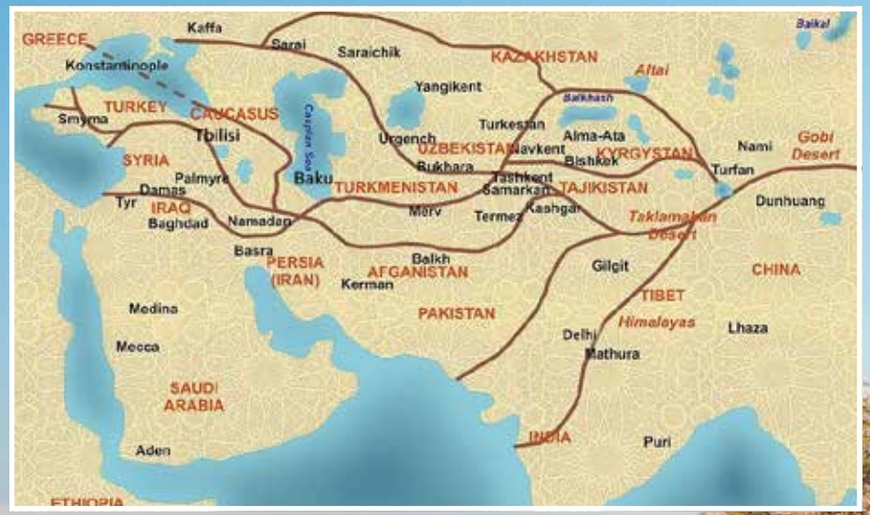
CHINA REFORESTATION POSSIBILITIES AND WHAT WAS ALREADY SUCCESSFUL DONE.

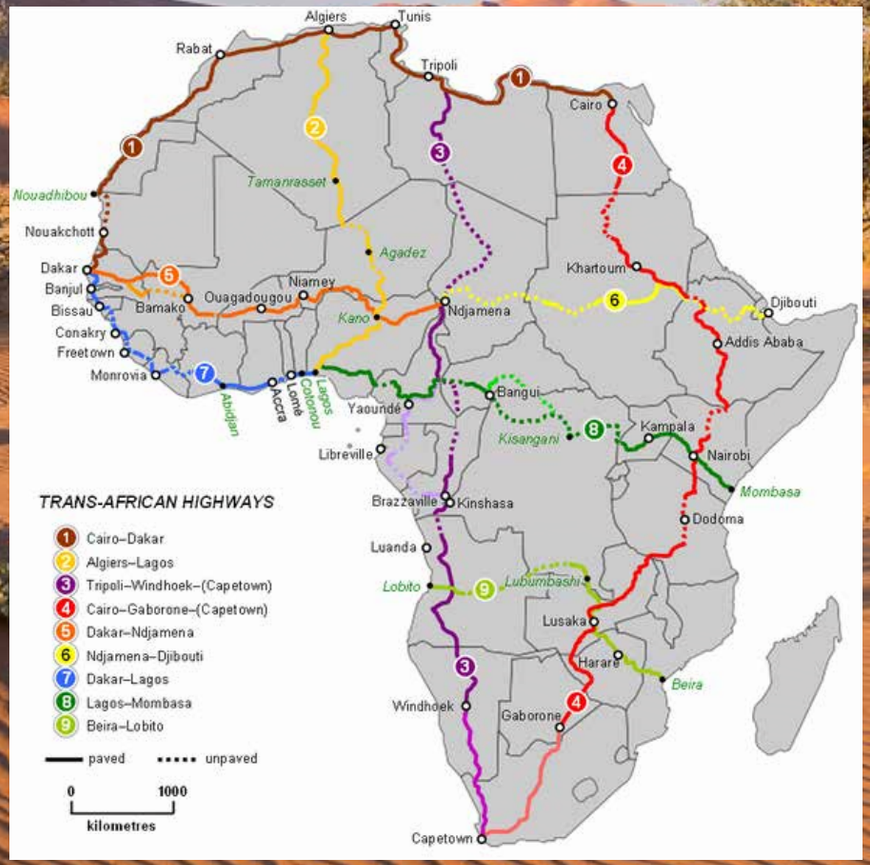
Reforestation measures at extreme locations can be significantly improved through the use of specially selected symbiosis partners. Especially in steppe afforestation, soil optimization through the addition of organic material and other substances is very important for the increased formation of roots in a mycorrhizal-friendly environment. **HUMIVERSE® TERRA** is the ideal organic fertilizer for a viable root formation of plants in arid regions.

通过使用特别选择的共生伙伴，可以显着改善极端地区的重新造林措施。 特别是在草原造林中，通过添加有机物质和其他物质进行土壤优化对于在菌根友好环境中增加根系形成非常重要。 HUMIVERSE® TERRA 是干旱地区植物根系形成的理想有机肥料。

Total available area on which trees could grow (current forest cover and area suitable for reforestation). (Image: Crowther Lab / ETH Zurich)[2] 树木可以种植的总面积（目前森林覆盖面积和适合重新造林的面积）（图片：Crowther Lab / ETH Zurich）

[2]Bastin JF, Finegold Y, Garcia C, Mollicone D, Rezende M, Routh D, Zohner CM, Crowther TW: The global tree restoration potential, Science, 5 July 2019, doi: 10.1126/science.aax0848





THE NEW SILK-ROAD
ONE BELT, ONE ROAD
新的丝绸之路，一路一带

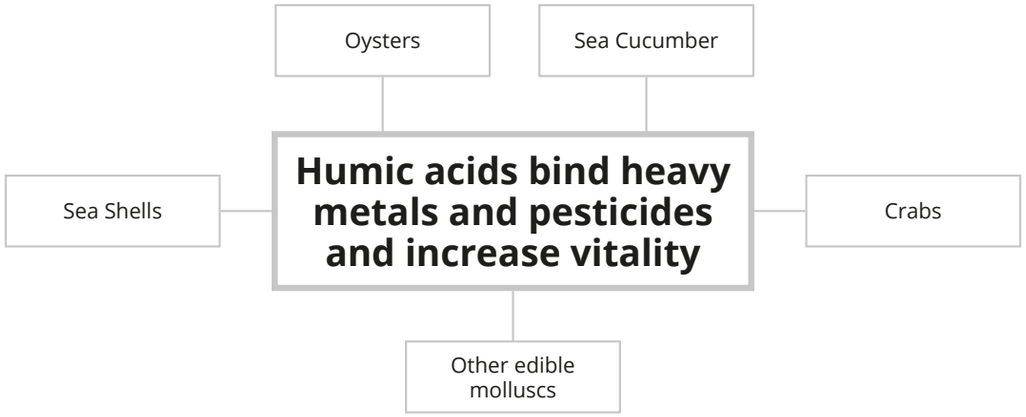
152 countries are currently working in the Chinese ONE BELT, ONE ROAD Initiative. The grandiose idea of networking and cooperation between Asia, Europe, Africa and South America will inspire world trade and open up new economic perspectives for the participating countries and their regions in every respect. To this end, agricultural use and the protection of previously unused arid areas will also be on a large scale.

目前有152个国家参与了中国的一路一带计划。 亚洲，欧洲，非洲和南美洲之间的网络与合作的宏伟理念将刺激全球贸易，并在各方面为参与国及其地区开辟新的经济前景。 为此，也将扩大农业用途和对以前未使用的干旱地区的保护。

AQUACULTURES
水产养殖

It has been scientifically proven that waters with a high content of Humic Acid have an extraordinarily rich biological diversity. When Humic Acid was added to the water of fish farms, an increased vitality of the fish and up to 20% reduced feed intake with continuous weight gain were observed. **HUMIVERSE®** will open new perspectives in the production of fishes, seafood like sea cucumber, oysters and shrimps.

科学证明，腐殖酸含量高的水具有非常丰富的生物多样性。当将腐植酸添加到养鱼场的水中时，观察到鱼的活力增加并且饲料摄入量减少约20%且鱼的体重持续增加。**HUMIVERSE®**将在例如：海参，牡蛎和虾等海鲜产品上开辟新的运用。



HUMIVERSE® AQUA
水产养殖

The positive effects of Humic and Fulvic Acid additives in fish feed and also in the water of fish tanks have been scientifically proven. Increased vitality (no or only low use of antibiotics), stress resistance, better feed conversion (up to 20% less feed use with constant weight gain), lower mortality also in juvenile fish farming.

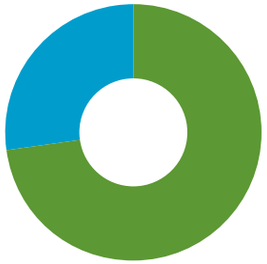
腐殖酸和富里酸添加剂在鱼饲料和鱼缸水中的积极作用已得到科学证明。 增加活力(不使用 或仅使用较少的抗生素)，抗逆性，更好的饲料转化率(饲料用量减少20%，体重 增加不变)，幼鱼养殖的死亡率也降低。

A mixture of Zeolite Clino (CLINOPTILOLITE) and **HUMIVERSE®** can also be used as a fish food additive **HUMIVERSE®AQUA**. The substrate constitutes a powerful additive, boosting the efficiency of modern fish-food to significant higher levels. The company Xiamen Recircinvest Biotech Co. Ltd., headed by Mr. Werner Gaus, is to start a trial with a local producer.

Production in aquafarms will experience an enormous upswing over the next few years. China is already the largest producer and consumer of farm products.

沸石Clino (CLINOPTILOLITE)和**HUMIVERSE®**的混合物也可用作鱼食添加剂**HUMIVERSE®AQUA**。 由该物质生产出的添加剂，将现代鱼类食品提高到一个非常高效的水平。由Werner Gaus先生领导的厦门Recircinvest Biotech公司 将与当地的厂家合作开始相关试验。 将与当地的厂家合作开始相关试验。

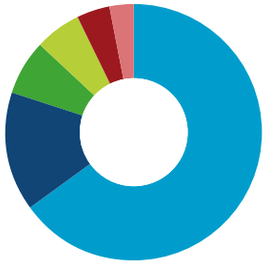
© Werner Gaus with 8 kg Tiger GG Hybrid Grouper



China's reliance on aquaculture is muchhigher than the rest of the world
中国对水产养殖的依赖程度远高于世界其他地区

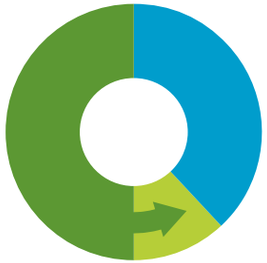
Aquaculture 73%
Wild Catch 27%

Source: China Water Risk, Fisheries & AquacultureStatistics (2015)



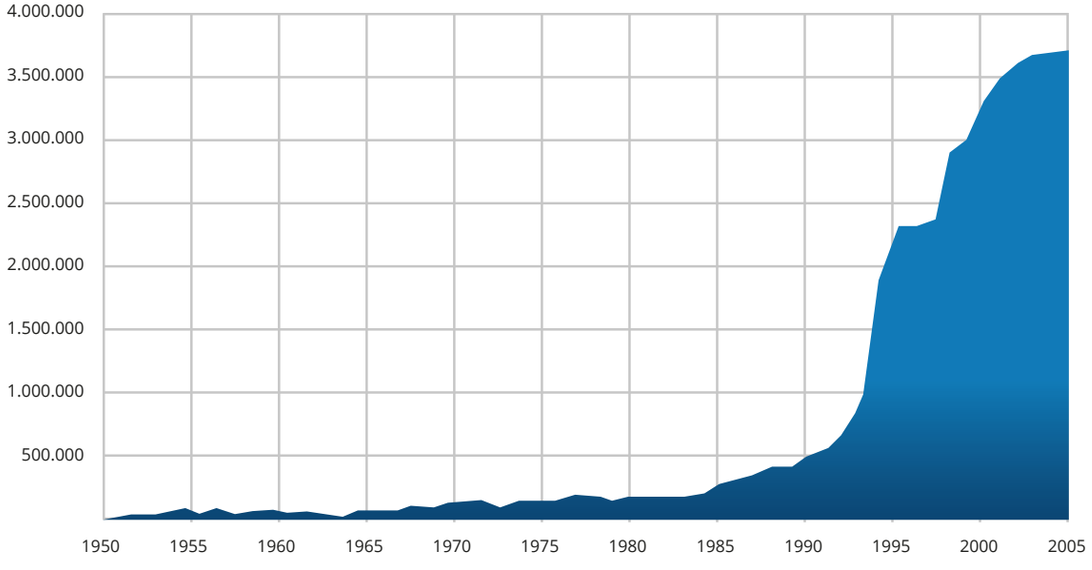
China produces >60% of global aquaculture
水产养殖生产将在未来几年内经历巨大的增长

China 65%
Indonesia 6%
ROW 15%
Vietnam 4%
India 7%
Bangladesh 3%



Seafood produced by aquaculture
中国已经是最大的农产品生产国和消费国

2019 - 50%
2030 - 62%



© Oyster consumption in China

THE YANGTSE OYSTER-PROJECT
扬子牡蛎项目

China is the world's largest producer and consumer of oysters. Approximately 3.7 million tons of oysters are eaten every year, with an upward trend.

中国是世界上最大的牡蛎生产国和消费国。 每年大约有370万吨牡蛎被吃掉，并且呈上升趋势。

There are several projects in the world for the use of oysters as biofilters. The aim is to purify waters that have been contaminated with nitrates, heavy metals and pesticides through intensive agricultural use. The US-American project to clean the New York harbor basin with the help of millions of oysters is well known. Less well known is the Chinese project in the mouth of the Yangtze. 5 billion oysters were put into the water to purify it with the help of their enormous pumping attitude (220 L/day). Another side effect is that oysters are fattened by nitrates. The performance of oysters as biofilters is scientifically undisputed. However, the concept overlooked the fact that oysters also store heavy metals and pesticides in meat and, when they die, release these pollutants directly into the human food chain via fish consumption.

世界上有几个项目将牡蛎用作生物过滤器。目的是净化在密集的农业用途上被硝酸盐，重金属和农药污染的水质。美国用数百万只牡蛎清理纽约港盆地的项目众所周知。鲜为人知的是长江口的中国项目。将50亿只牡蛎放入水中在他们巨大的泵能（220升/天）帮助下净化水质。另一个副作用是牡蛎被硝酸盐养肥。牡蛎作为生物过滤器的性能在科学上是无可争议的。然而，这个概念忽视了这样一个事实，即牡蛎还将重金属和杀虫剂储存在牡蛎肉中，当它们死亡后，这些污染物通过鱼类产品直接释放到人类的食物链中。

[2]See attachment – List of selected scientific reports

THE YANGTSE OYSTER-PROJECT
扬子牡蛎项目

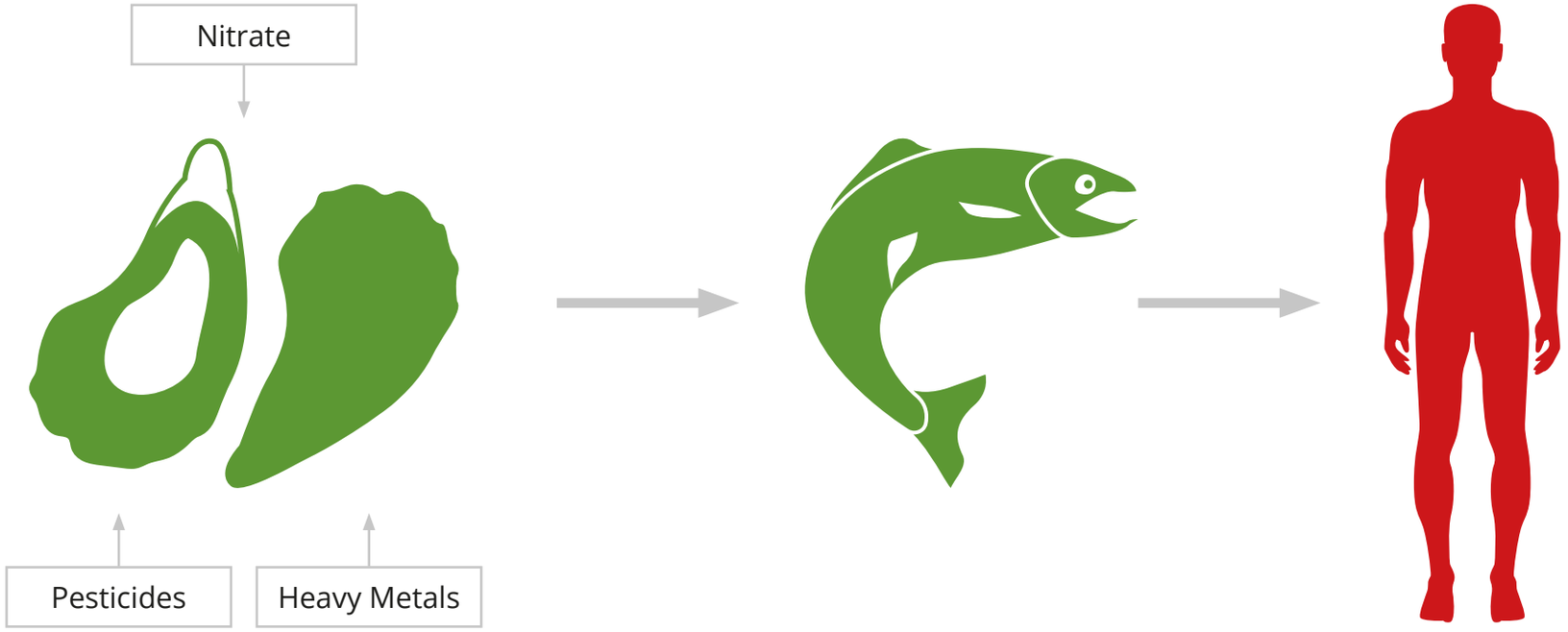
Due to the lack of comprehensive control of oysters, products that lead to food poisoning are repeatedly consumed by humans. Some examples have been uncovered by the Hong Kong and Guandong authorities in the past, but there are certainly other examples. There are also various problems with the use of antibiotics and other chemicals in fish farms.

The trials in Haicang/ Xiamen are intended to clarify whether the use of humic acid **HUMIVERSE®** can isolate and flush out the pollutants in the contaminated oysters.

由于缺乏对牡蛎的全面控制，这种导致食物中毒的产品在被人们不断食用。香港和广东当局过去曾发现过一些例子，但肯定有其他例子。在养鱼场使用抗生素和其他化学品也存在各种问题。海沧/厦门的试验旨在澄清腐植酸**HUMIVERSE®**是否可以分离和清除受污染牡蛎中的污染物。

DO WE POISON US AND THE NEXT GENERATIONS?

我们是在毒害自己和我们的下一代？



CAN WE PRODUCE BIO-CERTIFICATED OYSTERS FOR CHINESE AND INTERNATIONAL MARKETS?

我们能否为中国和国际市场生产生物认证的牡蛎？

Pilot project Zhang Zhiwen Academy of Agricultural Science, ReCircinvest Biotech Ltd. Xiamen und Terra Optima Inc.

The project of an ecological theme park was presented and approved by the Zhang Zhiwen Academy of Agricultural Science of the Chinese government in January 2019. By 2020, 10 fish farm modules are to be put into operation. The systems will be supplied by ReCircinvest Biotech Ltd. Xiamen under the direction of CTO Werner Gaus.

The project will combine fish farming and oyster fattening, including oyster cleaning. The oysters removed in the offshore area of the Yangtze will be cleaned of heavy metals and pesticides in the humic acid-containing water and will be brought to the domestic and international markets as eco-certified food. ReCircinvest Biotech Ltd. has an exemplary function with the model 2019 of a Bio-certified fish farm with effects on land-based fish and seafood production in the entire People's Republic of China and abroad. **HUMIVERSE® AQUA** will support a new standard of organic sea food.

生态主题公园项目于2019年1月由章之汶农业科学院提出并由中国政府批准。到2020年，将有10个养鱼场模块投入运营。 该系统将由厦门ReCircinvest Biotech有限公司在CTO Werner Gaus的指导下提供。

该项目将结合养鱼和牡蛎育肥，包括牡蛎清洁。 在长江近海地区牡蛎将清除含腐殖酸水中的重金属和农药，并将作为生态认证食品带到国内和国际市场。

ReCircinvest Biotech Ltd.在生物认证养鱼场的2019型模型中具有示范性功能，对整个中华人民共和国和国外的浅水鱼类和海产品生产具有影响。 **HUMIVERSE® AQUA** 将支持有机海产品的新标准。

RECIRCINVEST BIOTECH CO. LTD., XIAMEN

We will produce not only certificated oysters but also shrimps, sea cucumber, shells and much more.

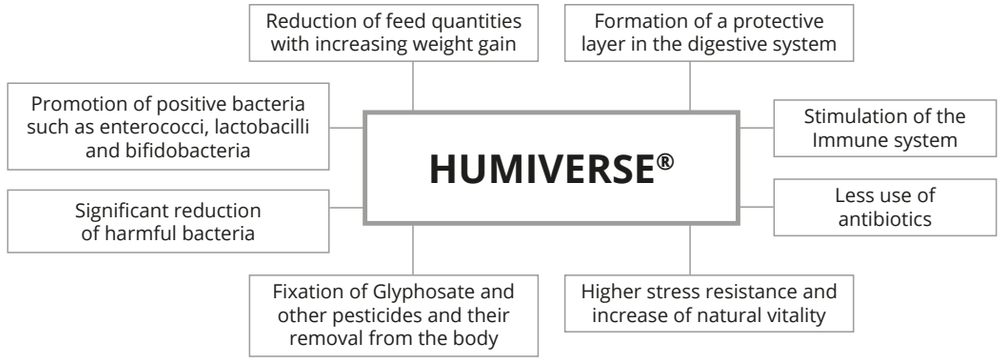
我们不仅会生产经过认证的牡蛎，还会生产虾，海参，贝壳等等

Main Entrance
Recircinvest Biotech Co. Ltd.

LIVESTOCK FATTENING
牲畜育肥

The use of Humic and Fulvic Acids in animal fattening has been investigated worldwide. The results showed healthier animals that needed less food while maintaining their weight gain. The Humic and Fulvic Acids in animal feed thus ensured better feed conversion. At the same time, the use of antibiotics could be significantly reduced or even completely dispensed with. Here, clear analogies to the experiments in human medicine can be observed. There are with the pure organic **HUMIVERSE®** or **HUMIVERSE® LIFE** in a combination with **Zeolith Clino** in animal food new challenges in meat production especially for pigs and chickens. The substrate constitutes a powerful additive to boost the weight gain efficiency on livestocks' to significant higher levels.

腐殖酸和富里酸在畜牧业上的运用已经在全世界得到广泛研究。结果显示，动物如果需要较 少的食物同时保持体重增加则越健康。因此，动物饲料中的腐殖酸和富里酸确保了更好的饲 料转化率。同时，抗生素的使用可以显著减少甚至完全不用。在这里，人类医学实 验的类比一目了然。运用纯有机的HUMIVERSE®给肉类产品尤其是猪肉，鸡肉带 来了新的机遇和挑战， 由该物质生产出的添加剂，可以让牲畜的体重快速高效的增 长。



[3]See attachment – List of selected scientific reports

UNIVERSITY OF OSNABRUCK
奥斯纳布吕克大学

At the University of Osnabruck 336 piglets were divided into a control and an experimental group in a feeding experiment. While the standard ration of the groups was identical, a product containing Humic Acid was added to the feed of the experimental group. The dosage was 0.3 % for piglet rearing feed 1 and 0.2 % for piglet rearing feed 2 and 3.[4]

The performance of the piglets could be significantly improved by the addition of Humic Acids. Daily weight gain and feed intake were increased by 4.7 % and 4.9 % respectively. The piglets in the experimental group weighed 1 kg more on average on the 48th day of life. The feed and energy expenditure was at the same level in both groups. In addition, the rating showed that at 2.4 % only a very small proportion of the animals in the experimental group showed injuries. The positive influence of Humic Acids is attributed to the fact that they promote mucous membrane coverage in the gastrointestinal tract. They also have an anti-inflammatory effect and support the non-specific defence against infection. The experiment makes it clear that products containing Humic Acid can also have a positive effect on performance in companies with good health and good performance.

Properties fo Humic substances
Anti-viral, Anti-inflammatory, Antimicrobial, Anticancer, Immunostimulatory, Antimutagenic, Antioxidant, Wound healing

在奥斯纳布吕克大学，336只仔猪在实验中被分为对照组和实验组进行喂养。虽然组的标准比例相同，但是将含有腐殖酸的产品添加到实验组的饲料中。仔猪饲养饲料1的剂量为0.3%，仔猪饲养饲料2和3的剂量为0.2%。

通过添加腐殖酸可以显著提高仔猪的性能。每日体重增加和采食量分别增加了4.7%和4.9%。实验组的仔猪在生命的第48天平均体重增加1公斤。两组的饲料和能量消耗均处于同一水平。此外，评级显示在2.4%时，实验组中只有极小比例的动物表现出受伤。腐殖酸的积极影响归因于它们促进胃肠道中的粘膜覆盖。它们还具有抗炎作用，并支持非特异性防御感染。实验表明，含有腐植酸的产品对好的健康状况也有积极促进作用。

腐殖质的特性
抗病毒，抗炎，抗菌，抗癌，免疫刺激，抗突变，抗氧化，伤口愈合

[4]The test was conducted in 2019

TRIALS IN BROILERS

仔鸡试验

Humic and Fulvic Acids are a class of compounds resulting from the decomposition of organic matter, particularly plants. Many studies and trials have showed their capacity to inhibit bacterial and fungal growth (decreasing levels of mycotoxins in feed), reduce stress by hormones, and improve the immune system, anti-inflammatory and antiviral properties, as well as to prevent and cure intestinal disorders. Humic and Fulvic substances also improve the nutritive value of feed and trace element utilisation, with positive effects on growth performances and a reduction in mortality.

腐殖质和富里酸是由有机物质特别是植物分解产生的一类化合物。 许多研究和试验表明它们 能够抑制细菌和真菌的生长(减少饲料中的真菌毒素水平)，减少激素的刺激，改 善免疫系统，具有消炎和抗病毒的特性，以及预防和治疗肠道疾病。 腐殖质和富里酸还可以
提高饲料的营养价值和微量元素的利用率，促进生长降低死亡率

HUMIVERSE®
CLEANING AND BINDING OF HEAVY METALS AND PESTICIDES
HUMIVERSE®
结合和清除重金属和农药

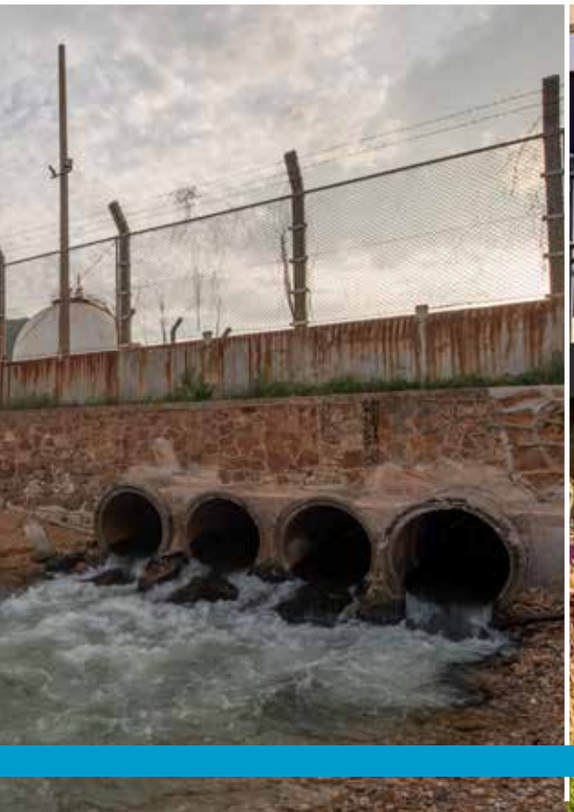
The aspect of heavy metal and soils contaminated with pesticides or other chemicals is a very huge field. It is proved by international research and high sophisticated investigations that Humic Acids bind all kind of heavy metals and crack a wide range of pesticides.[5]

An important aspect is also the binding of radioactive dusts with Humic Acids. In Russia, comprehensive research exists on this subject, which can be used for different projects worldwide. The available scientific literature clearly demonstrates the decontamination function of Humic Acids in radionuclides. This concerns humans, animals, soils and water.[6]

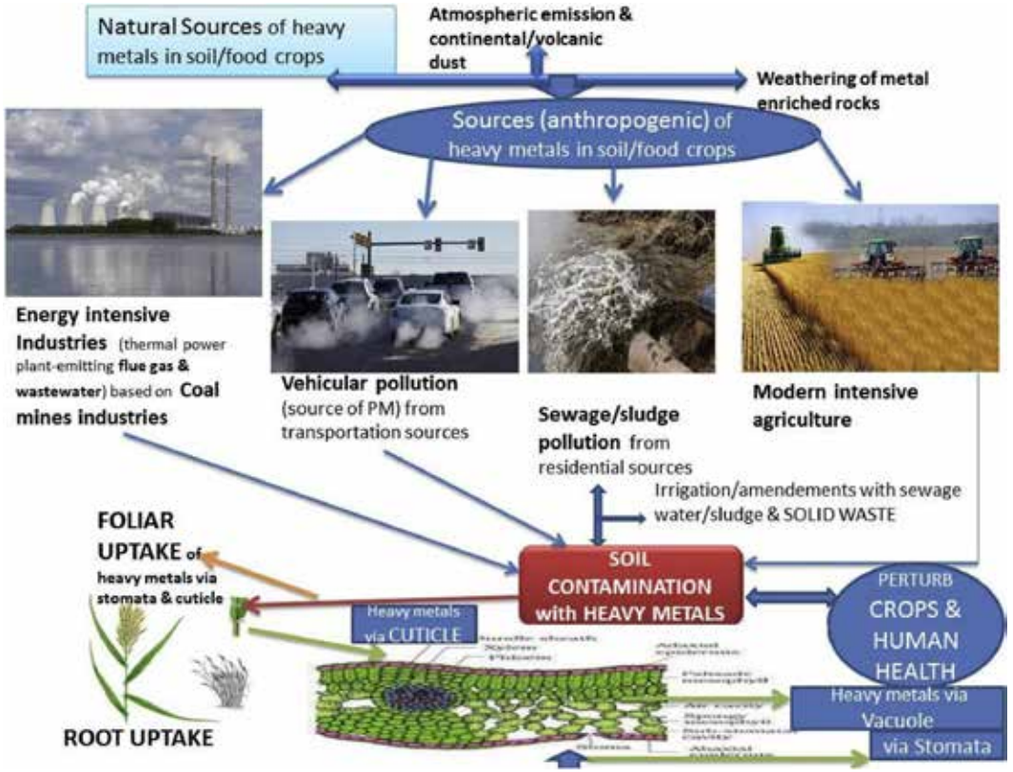
重金属和被农药或其他化学品污染的土壤是一个非常巨大的区域。 国际研究和高度复杂的研究证明，腐植酸可以结合各种重金属并裂解各种农药。

一个重要方面也是放射性粉尘与腐殖酸的结合。 在俄罗斯，有关该主题的综合研究，可用于世界各地的不同项目。 现有的科学文献清楚地证明了腐殖酸在放射性核素中的去污功能。 这涉及人类，动物，土壤和水。

[5]See attachment – List of selected scientific reports
[6]Prof. Perminova et. al., Organic Chemistry Division, Department of Chemistry, Lomonosov Moscow State University, See attachment



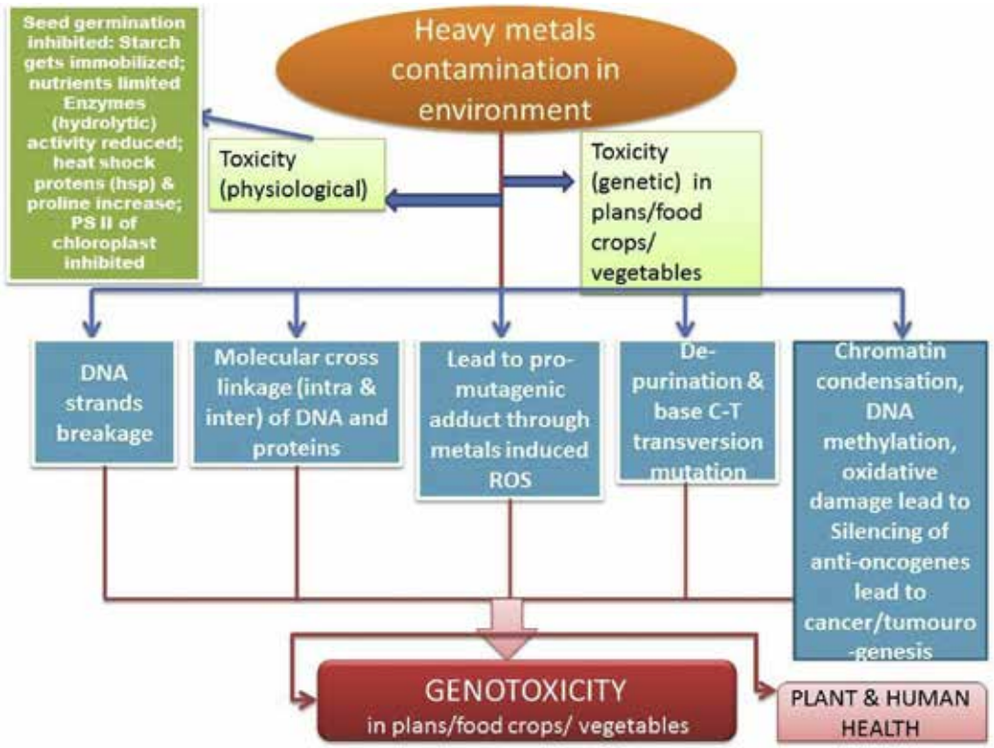
CLEAN OUR NATURE
净化我们的大自然



Natural and anthropogenic sources of heavy metal contamination in food crops and mechanisms of their entrance (through stomata/cuticle) with resulting impacts on biota and humans.

© Heavy metals in food crops: Health risks, fate, mechanisms and management
Prabhat Kumar Rai et. al.

CLEAN OUR NATURE
净化我们的大自然

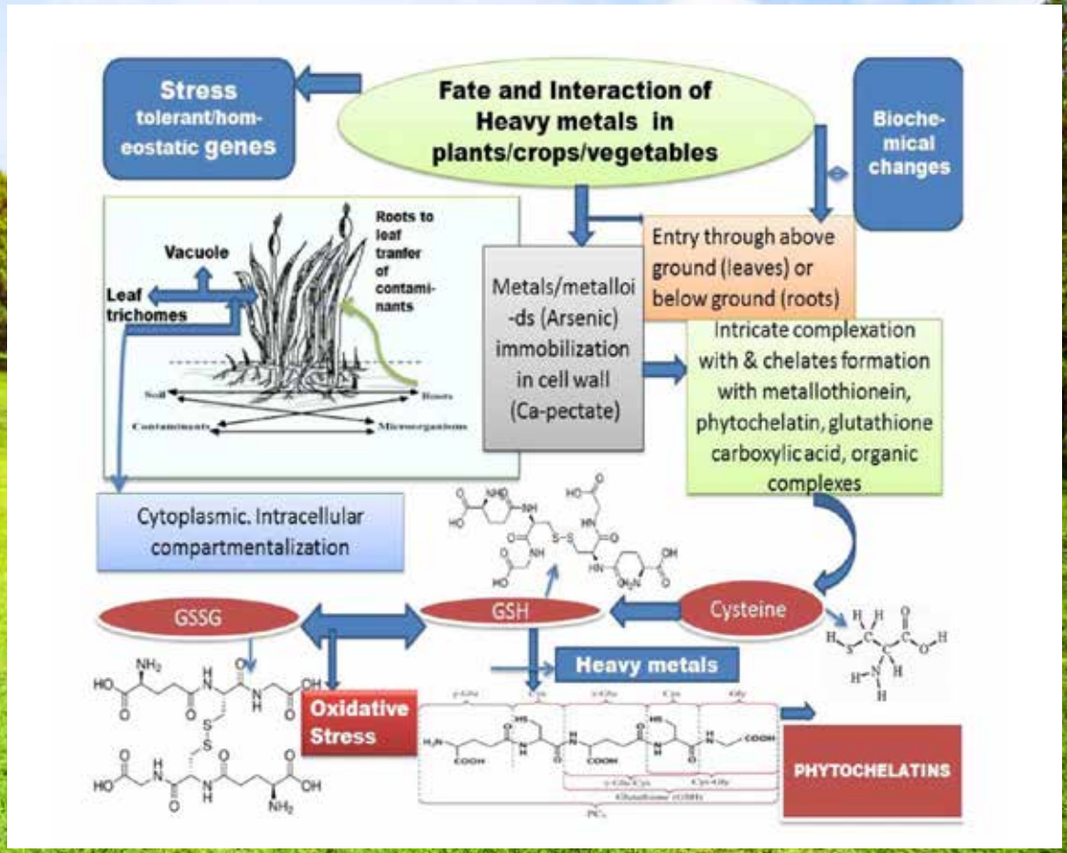


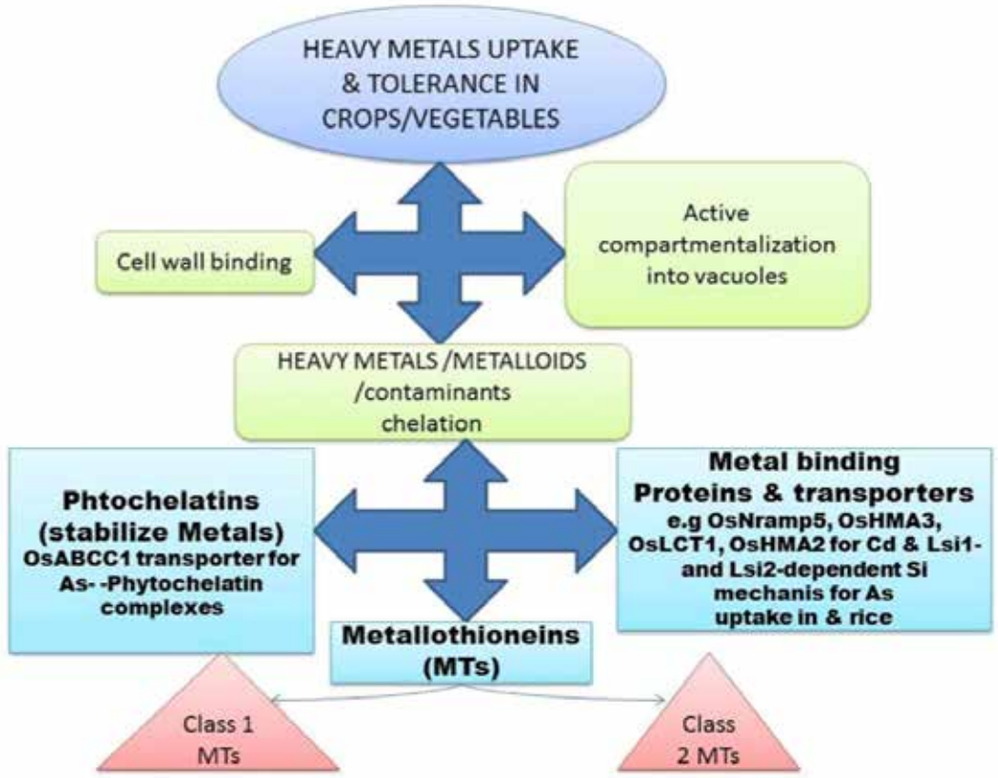
Eco-toxicological impacts (in terms of physiology and molecular alterations) of heavy metal contamination in food crops and ultimately on human health.

© Heavy metals in food crops: Health risks, fate, mechanisms and management
Prabhat Kumar Rai et. al.

METHODS OF CLEANING FROM HEAVY METALS

清除重金属的方法





Elucidation of molecular basis (cascade of stress tolerant biomolecular weapons) of heavy metals: (a) Upper: bioccumulation/interaction with food crops and (b) Lower: stress tolerance of food crops consequent on bioaccumulation of heavy metals.

© Heavy metals in food crops: Health risks, fate, mechanisms and management Prabhat Kumar Rai et. al.

ELIMINATION OF PESTICIDES
清除农药

Decades of misuse of pesticides have led to worldwide latent poisoning of agricultural products and farmers. So far, however, concepts for a cost-effective and sustainable cleaning of contaminated soils have been lacking. So far, set-aside is still the only means, with enormous losses due to crop failure. See the example of China, where bans on land use alone cost more than USD 3 billion per year.

Green' initiatives such as those in Switzerland, where the call for a complete ban on pesticides is being fiercely debated, will increase. Even if this initiative cannot be implemented at the moment, it shows a tendency. Only healthy soils can produce healthy food. Currently this discussion is also taking place in South Tyrol, where the ‚world's best apples' grow on pesticide-polluted soils.

The pesticide discussion, accelerated by the current Glyphosate discussion, will also remain a permanent topic in view of health costs. Here the use of **HUMIVERSE®** could bring an important solution, since the Humic and Fulvic Acids remove glyphosate and other pesticides from the body.[7]

几十年滥用农药导致全球农产品和农民潜在中毒。然而，到目前为止，缺乏经济有效和可持续的清洁污染土壤的观念。到目前为止，退耕地仍然是唯一的手段，由于作物歉收造成巨大损失。参见中国的例子，仅使用土地的禁令每年花费超过**30**亿美元。

绿色的倡议，例如在瑞士，那些要求彻底禁用杀虫剂的呼吁正被激烈争论，并将愈演愈烈。即使这一举措目前无法实施，也显示出一种趋势。只有健康的土壤才能生产出健康的食物。目前，这一讨论也在南蒂罗尔举行，那里的“世界上最好的苹果”在农药污染的土壤上生长。

农药方面的讨论也因为近来草甘膦的话题在不断发酵，将继续成为健康成本方面的永久性话题。在这里使用**HUMIVERSE®**可以带来一个重要的解决方案，因为腐植酸和富里酸可以去除体内的草甘膦和其他杀虫剂。

[7]Research Report University of Leipzig, Prof. Monika Krueger, pub. 2015, Nr. 153 Special Report, OM & Ernaehrung,

THE MILLENIUM PROJECT
千年项目

As we have demonstrated, **HUMIVERSE®** and its derivatives are used in a wide variety of applications in various areas of organic agriculture.

As much as international scientific research has investigated humic acids and their economic application, these extremely positive results have not been applied in practice. The high price and poor quality are certainly a deterrent, especially with regard to the high pollution levels with heavy metals. On the other hand, hardly any users have so far consistently calculated the economic advantages of using Humic and Fulvic substances in agriculture.

In a time in which chemical fertilizers are less and less effective, pesticides have been proven to destroy biological diversity and are also suspected of causing a variety of diseases among farmers and consumers of agricultural products, a paradigm shift is necessary. The demand for healthy food from a healthy nature becomes unmistakably loud and is urgently required out of respect for people and out of respect for the earth on which we live.

正如我们所证明的那样，**HUMIVERSE®**及其衍生物广泛应用于有机农业的各个领域。

尽管国际科学研究已经研究了腐殖酸及其经济应用，但这些极其积极的结果尚未在 实践中得到应用。高价格和低质量肯定是要遏制的，特别是在重金属的高污染方面。另一方面，到目前为止，几乎没有任何用户一直在计算在农业中使用腐殖酸和富里酸的 经济优势。

在化肥的效果越来越差的时代，农药被证明会破坏生物多样性，也被怀疑在农民和农产品消费者中引起各种疾病，里程碑式的改变是有必要的。健康食品和对健康食品的需求变得非常重要，迫切需要对人的尊重和对我们生活的地球的尊重。

HUMIVERSE® is the consistent answer to this.
Talk with us, we will find a solution

HUMIVERSE®始终是这方面的答案。
与我们联系，我们将找到解决方案

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