



Lantmännen  
Lantbruk



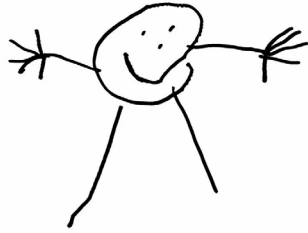
Lantmännen  
BioAgri



Sustainable plant production - from our perspective

Christian Thaning





## **Christian Thaning**

Agronomist, Ph.D.

Consulting

R&D, Production

Regulatory affairs, IPR

~ 25 years in international

biocontrol industry

Introduction

Sustainable Agriculture

Market

Products – groups

Products - examples

Future

Closing





We appreciate  
market information -  
continually!

**YOU** are our best source!

Please keep us updated!



# Products



**bioagri**

## Våra produkter



### Gödningsmedel

Algin Vita® Bor10	6	Intrachem® Phosphor-Amino-Kalium	34
Algin Vita® Cu12	7	Intrachem® UV	35
Algin Vita® Cu7	8	Lyrodin® Calcium Express	36
Algin Vita® Fe17	9	Mikrochelät Cu-9 flösig	37
Algin Vita® Kalium20	10	Mikrochelät Zn-6 flösig	38
Algin Vita® Mg7	11	OPTICAL®	39
Algin Vita® Mn10	12	Oreade®	40
Algin Vita® Mo15	13	Pionit® Calcium	41
Algin Vita® Norg 9	14	Pionit® Energy	42
Algin Vita® NPK 2-2-8	15	Pionit® Foster	43
Algin Vita® NPK 4-2-6	16	Pionit® Getreide	44
Algin Vita® NPK 6-2-2	17	Pionit® Kalprim	45
Algin Vita® SpE	18	Pionit® Kartoffel	46
Algin Vita® Zn11	19	Pionit® Majs	47
BOMBARDIER	20	Pionit® Nitromag	48
CAOS XT	21	Pionit® Phoscalvit	49
Florea®	22	Pionit® Raps	50
FRISOL®	23	Pionit® Råbe	51
Froster®	24	Quantian® Bor 15 fl	52
GROWON®	25	Quantian® Bor5	53
Hydropon Mikro Plus	26	Quantian® CaBo	54
Intrachem® Mikrochelät Cu-15	27	Quantian® Calcium 28	55
Intrachem® Mikrochelät Fe-13	28	Quantian® Cu5	56
Intrachem® Mikrochelät Fe-6 o-o	29	Quantian® Fe75	57
Intrachem® Mikrochelät Mn-13	30	Quantian® Kapfer 26	58
Intrachem® Mikrochelät Ni-15	31	Quantian® Magnesium 25	59
Intrachem® Bor 17,4 G	32	Quantian® Mangan Carbonat	60
Intrachem® Mikrogranulat Plus	33	Quantian® Mangan Chelat	61

## Produktkatalog

Din partner för uthållig odling



Godkänd för ekologisk odling



alla grödor



jordbruk



fruktodling

Quantian® Mangan Nitrat	62
Quantian® Mangan Sulfat	63
Quantian® Mg flösig	64
Quantian® Mykobilin 1G	65
Quantian® NPK 12-6-7	66
Quantian® NPK 6-12-7	67
Quantian® Splitter	68
Quantian® T	69
Quantian® Vita	70
Quantian® Zink	71
Sealster®	72
Secover 04® 3-18-18	73
SOINERAT® 30 GM	74
SOINERAT® flösig	75
SOINERAT® Schwefel-Lösung	76
Sugar Express	77
Terra-Gut® foliar	78
Viafor®	79
<b>Jordförbättring</b>	
Endo Canal	82
Endo Milk	83
Endofloor®	84
Promax® Plus	85
Terra plus®	86
Trichotta®	87

## bioagri

<b>Växstöd</b>	
Algin Vita® Algen	90
Quantian® Algenkonzentrat	91
SelenVita®	92
TrichoVita®	93
<b>Växtskyddsmedel</b>	
CADOPHYCONE EVO2®	96
Ordisum®	97
Carat®	98
Melcon®-Pflanzeste	99
<b>Växtförbättring</b>	
Activil	102
Algin Vita®	103
BLACKJACK® SC	104
JOKER SL	105
Vapor Gard®	106
<b>Tillsatser</b>	
Nu-Flow®-D	110
<b>Övriga produkter</b>	
Carbon Complex	114
Growthon®	115
Kalpak®	116
Lake Water®	117
OsmoMax®	118
Pobius®	119



Skapad i produktkatalogen



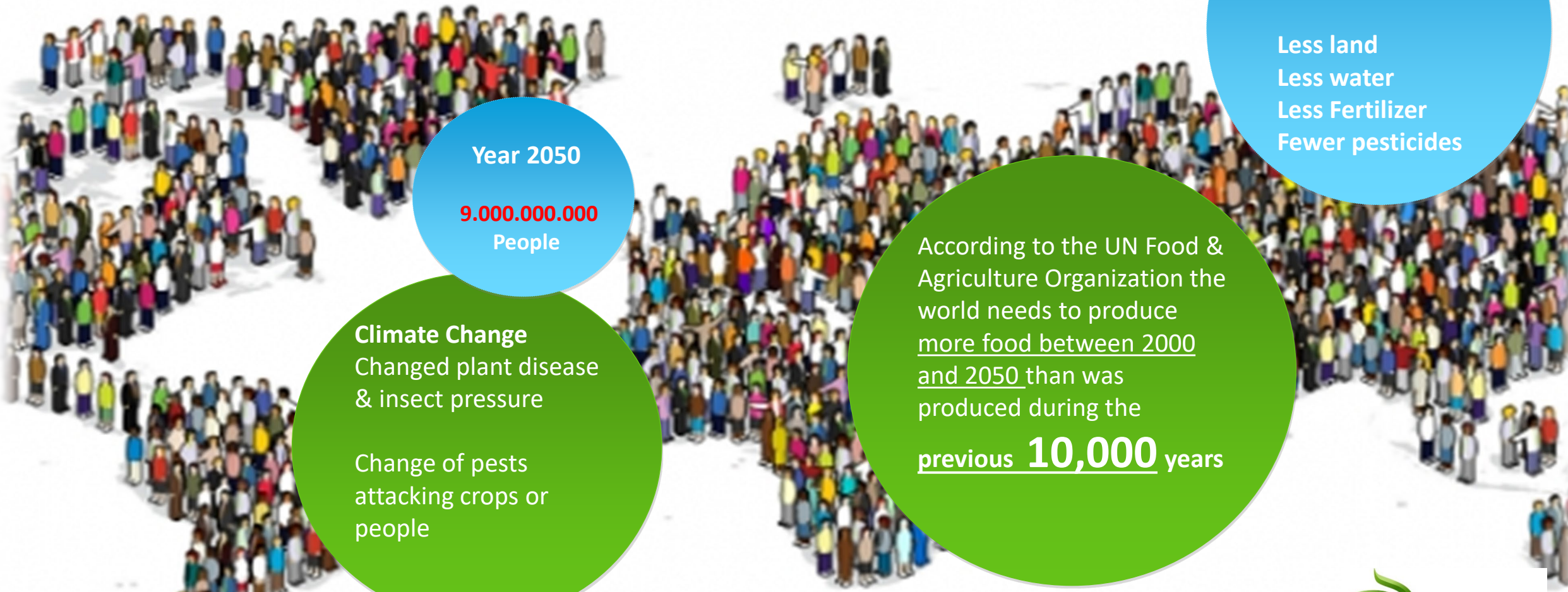
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# BioAgri – Agriculture focus areas

- Seed technology
- ThermoSeed
- Thermoseed in combinations
- N-strategies
  - fixation,
  - plant availability
  - non leakage
- Sustainable field treatments against Fusarium/DON



# Sustainable production



Year 2050  
**9.000.000.000**  
People

**Climate Change**  
Changed plant disease  
& insect pressure

Change of pests  
attacking crops or  
people

According to the UN Food & Agriculture Organization the world needs to produce more food between 2000 and 2050 than was produced during the previous 10,000 years

70% more food by 2050, using.....

- Less land
- Less water
- Less Fertilizer
- Fewer pesticides

Source: Dr Jack Bobo Sr Advisor for Biotechnology US State Dept





# SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD

**1** NO POVERTY

**2** ZERO HUNGER

**3** GOOD HEALTH AND WELL-BEING

**4** QUALITY EDUCATION

**5** GENDER EQUALITY

**6** CLEAN WATER AND SANITATION

**7** AFFORDABLE AND CLEAN ENERGY

**8** DECENT WORK AND ECONOMIC GROWTH

**9** INDUSTRY, INNOVATION AND INFRASTRUCTURE

**10** REDUCED INEQUALITIES

**11** SUSTAINABLE CITIES AND COMMUNITIES

**12** RESPONSIBLE CONSUMPTION AND PRODUCTION

**13** CLIMATE ACTION

**14** LIFE BELOW WATER

**15** LIFE ON LAND

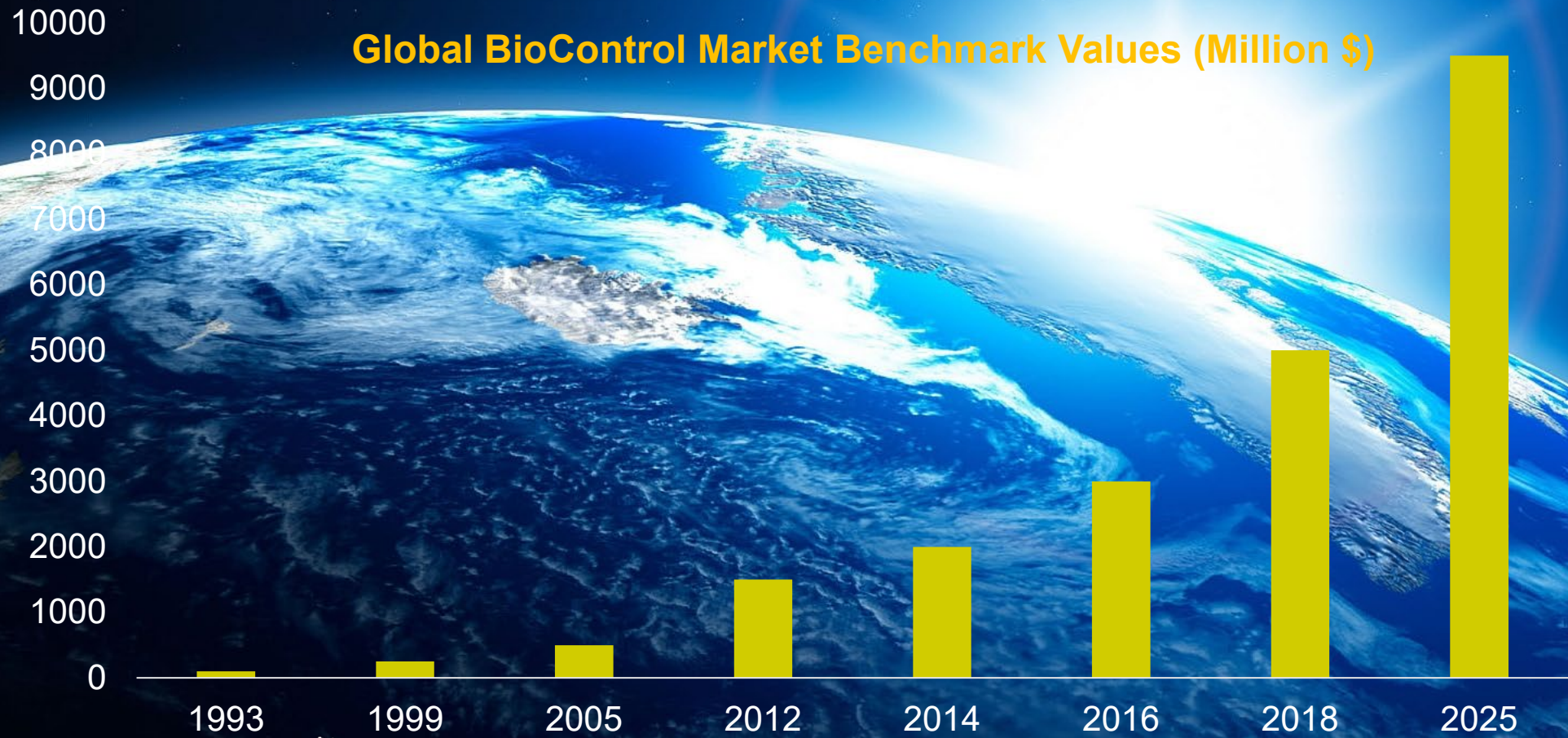
**16** PEACE, JUSTICE AND STRONG INSTITUTIONS

**17** PARTNERSHIPS FOR THE GOALS

SUSTAINABLE DEVELOPMENT GOALS



# Global Landscape





# - the cleanest seed in the world!

- ✓ Thermal disinfection by steam pasteurization.
- ✓ Efficiency: equivalent to conventional treatments, with very high quality.
- ✓ Capacities available up to 25 tons/h.
- ✓ Profitability: high seed value / attractive cost level.
- ✓ Environmentally friendly.



# ThermoSeed

We work with...



Cereals



Rice



Forage



Vegetables

Effective against...



Fungi



Insects



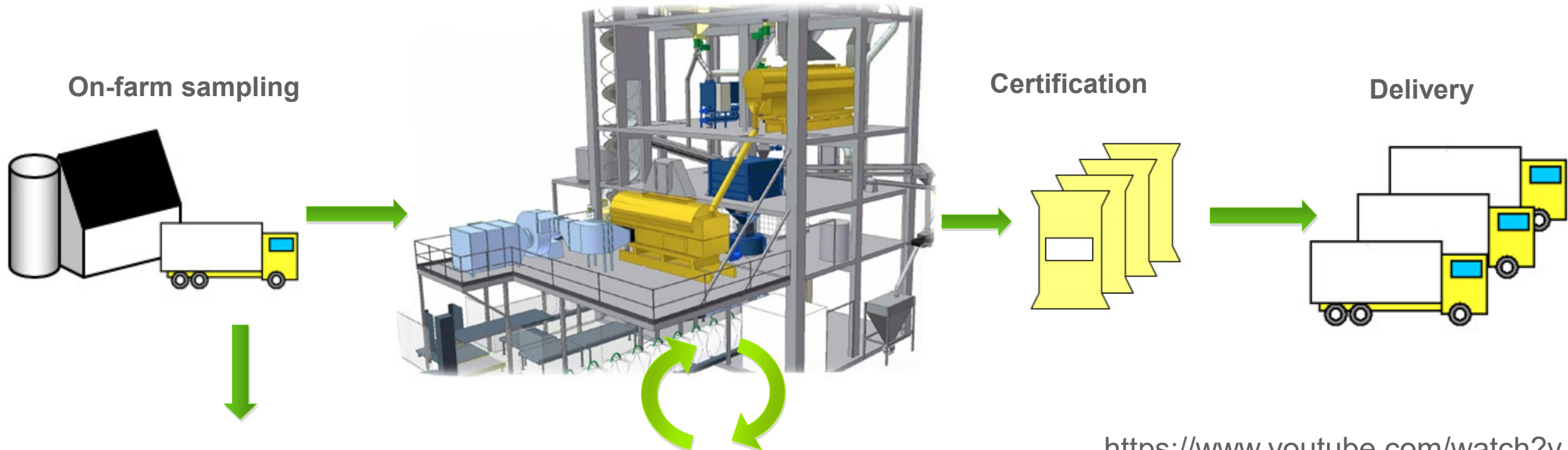
Bacteria



Nematodes



# ThermoSeed Quality System



On-farm sampling

Certification

Delivery

Intake test at seed lab

TS Global AB

<https://www.youtube.com/watch?v=wFKrP2nbopA>



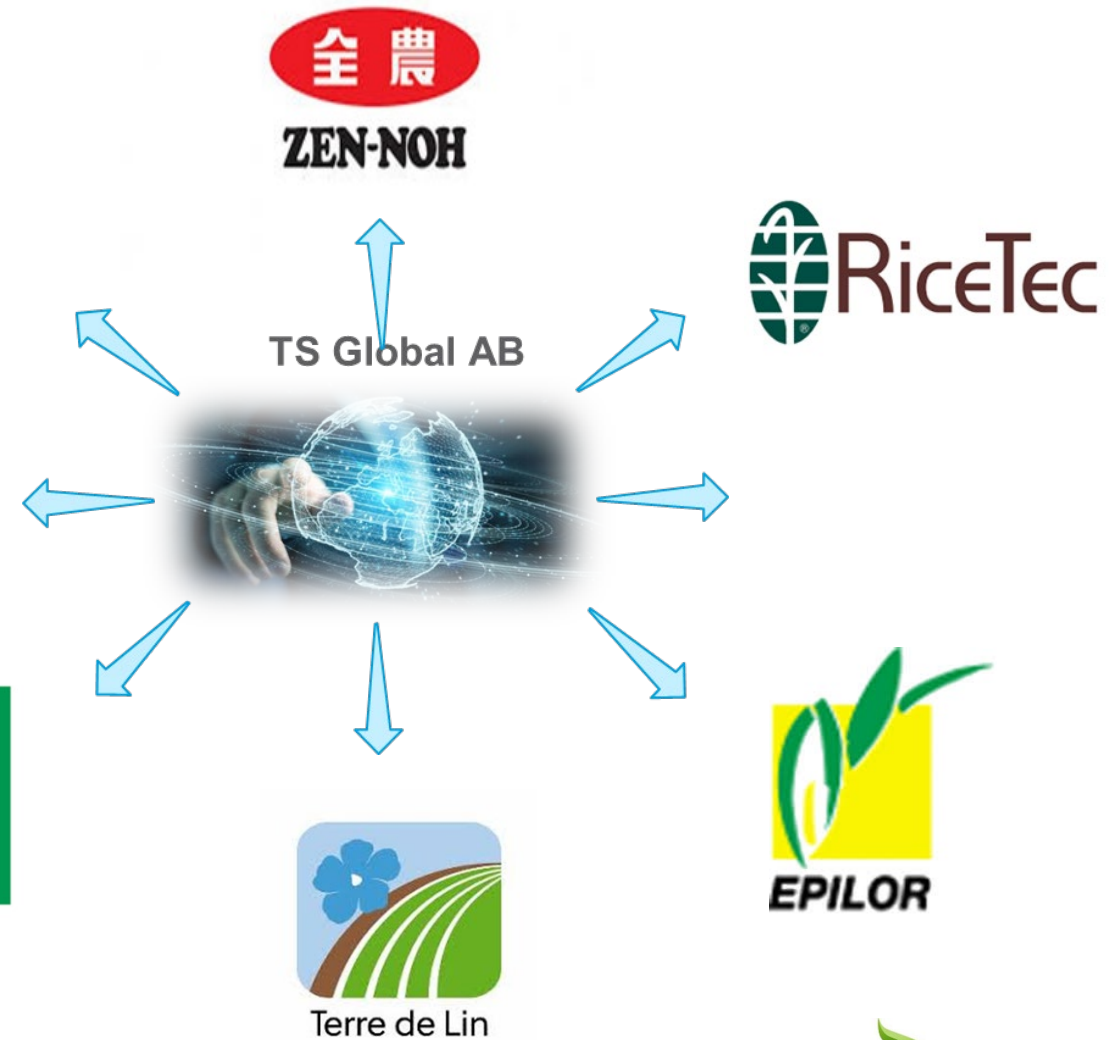
Information processing  
(database, mathematical  
models, know-how)



# ThermoSeed Global AB

Network for Pre-Tests, Quality Control,  
Diagnosis & Service

- ❑ 7 year of full commercial production.
- ❑ Globally expanding, introduced in 4 continents.
- ❑ Scandinavia: 50 000 – 70 000 ton cereals/year.
- ❑ 60-70% of the oat market in Scandinavia.
- ❑ Commercial also in rice and some vegetables.
- ❑ Several crops under evaluation.



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# Thermoseed effect on seeds



Untreated



Thermoseed treated



# Thermoseed effect on chick pea

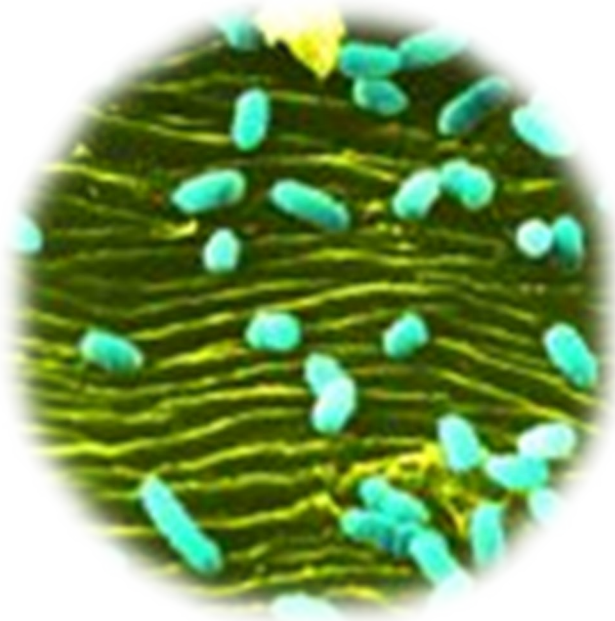


Untreated



Thermoseed treated





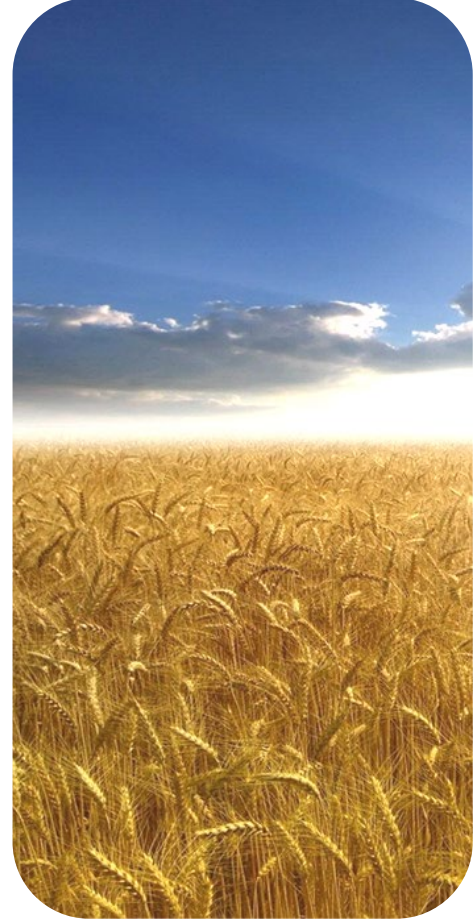
BIOCONTROL  
SEED  
TREATMENT  
Products

Cedomon®

Cerall®

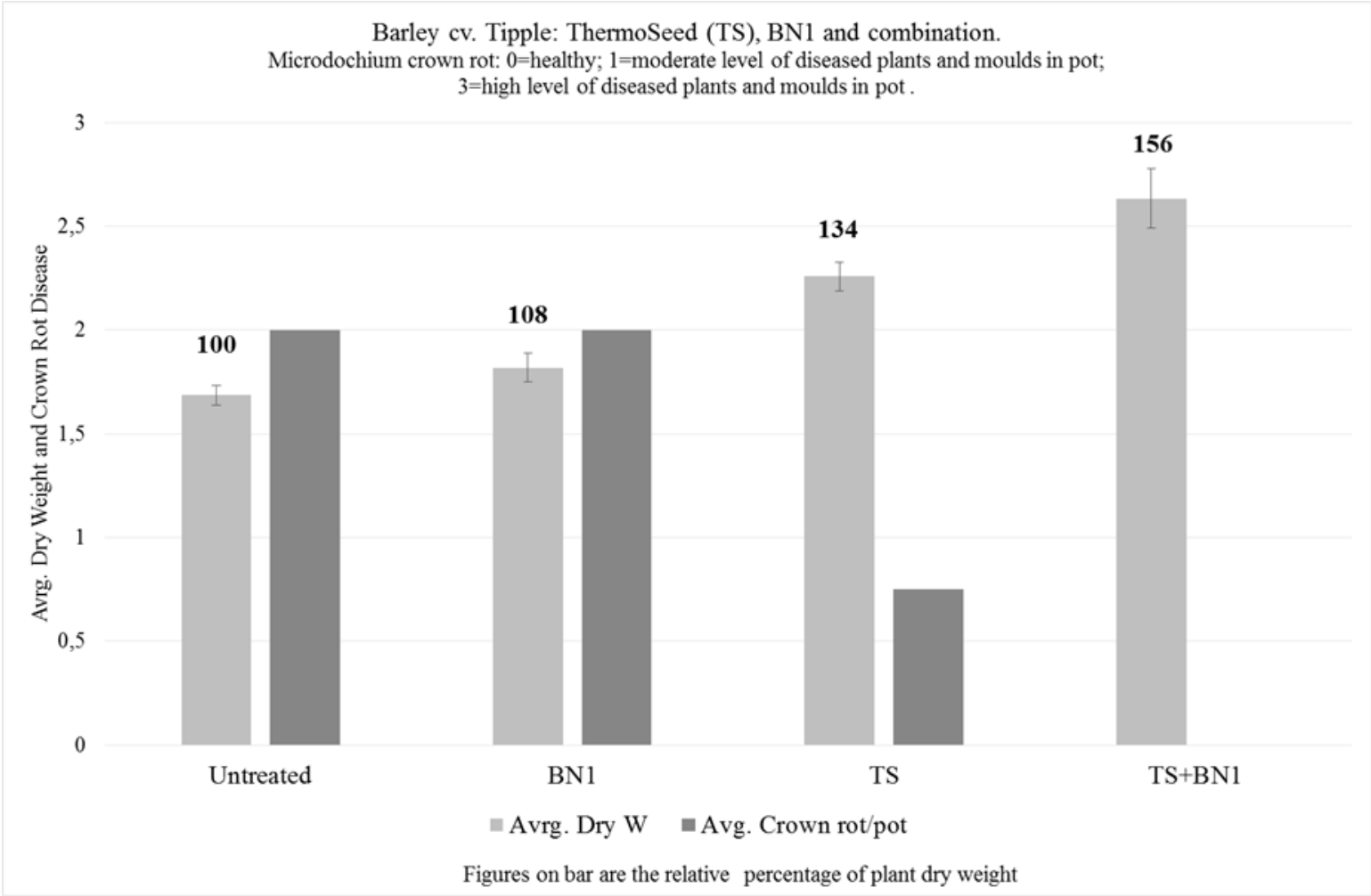
Cedress®

Registered in most EU Countries

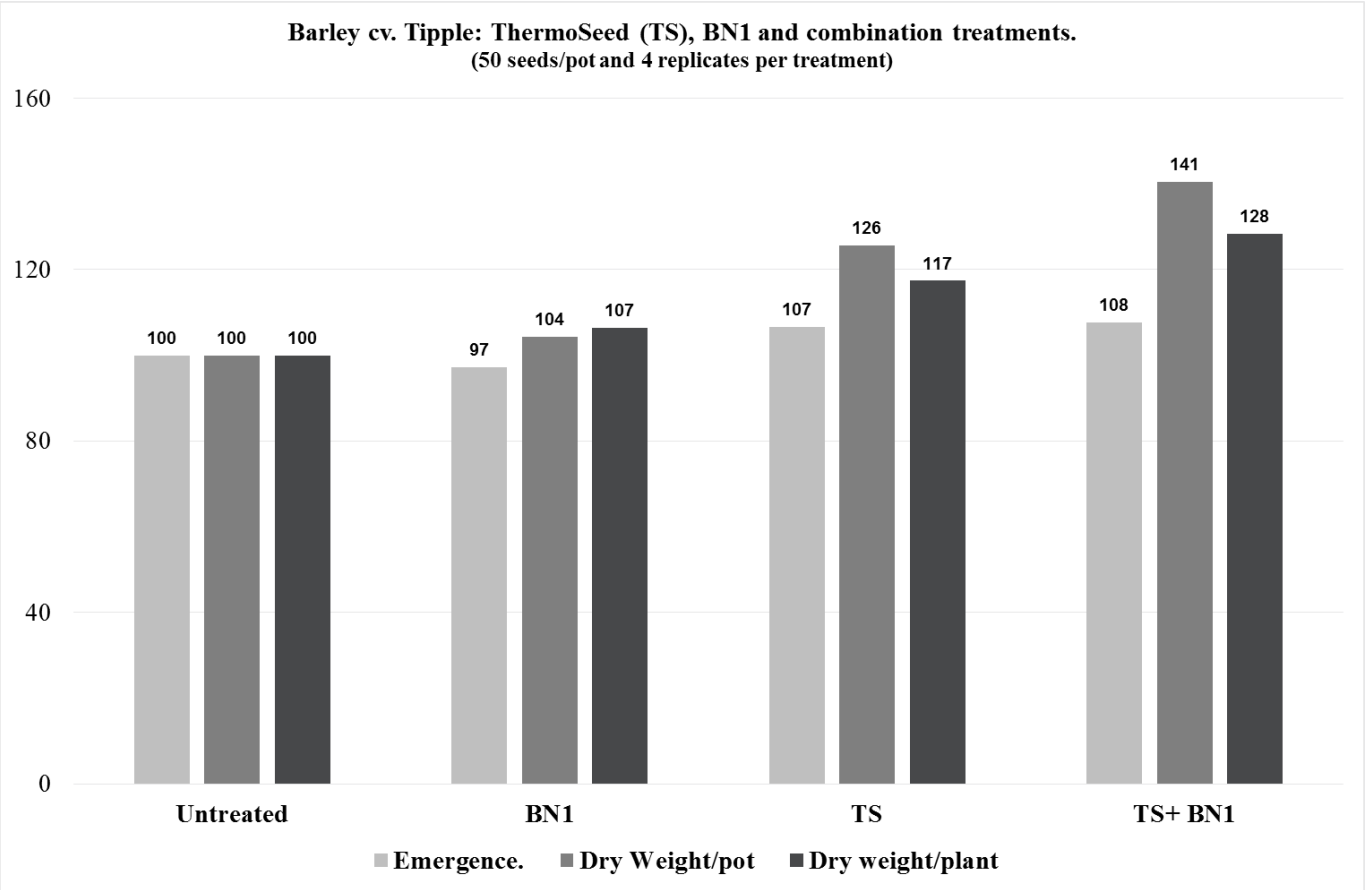




# Combination seed treatment TS – BN1



# Combination seed treatment TS – BN1



# Next step – an example

**ThermoSeed**

+

Bio-control  
Bio-stimulation  
Bio-fertilizer



# TESST

Testbed for **E**nvironmentally **S**ustainable **S**eed  
Treatments

The project will build a test bed ( = test laboratory) that will be an open platform for developing and testing new innovative ideas, technologies and products for sustainable and efficient seed treatment and production.

The test bed will assist suppliers and inventors to evaluate their new technologies and products, helping growers and seed companies to find and evaluate sustainable alternatives for different crops, purposes and local conditions.

It will be available to researchers who want a realistic, production-based evaluation of different research hypotheses, and it should provide an excellent tool for advisors and authorities for conclusions and recommendations.

The test bed will contribute to the formation of new companies, increased exports and increased employment based in Swedish seed technology and seed production.

Location: Bjuv, Sweden

Lantmännen, Foodhills AB, Intrachem GmbH, SLU, Agroplantarum, Findus Sverige AB,

