• Innovative company founded in 1996
• Biological control and plant growth stimulation
• Naturally occurring organisms Thermoseed in Scandinavia
- Introduced 1997
- First with a EU- Annex1 registration for a bacteria
- Seed Treatment products with focus in Agriculture
- Market own environmental friendly crop protection products
  but authorities do not allowed us to tell it !!!!
BioAgri make a difference! = IPM

Cereal production in Sweden about 1 M ha

- ThermoSeed = 75 000 ha = 15 000 ton seed
  Cedomon/Cerall = 175 000 ha = 35 000 ton
- Annual total = 250 000 ha = 50 000 ton

- Replacing ca 100 000 liter of chemical seed treatment products, 25% of total cereal area in Sweden. In EU <<1%

Cedress, 2/3 of wining peas area in Sweden. In EU earliest 2017?
Carrots new 2013. 10% of area in Sweden. In EU earliest 2017?

- ThermoSeed in Norway will replace 50 000 liter, 50% of certified seed. Introduced 2012.

- We expand!
Pseudomonas chlororaphis strain MA 342 – a natural soil bacterial isolate

- The active ingredient in our biological seed treatment products Cedomon®, Cerall®, and Cedress®
- Isolated and selected by researchers at SLU in 1989
- Annex I approved since 2004
- Potential in many other crops
- Used in more than 5 Mha
Pseudomonas chlororaphis MA342 in Europe

The Annex I listing of *P. chlororaphis* strain MA 342 was approved in 2004.

- Cedomon / barley and oats, (spelt)
- Cerall / wheat, rye, and triticale
- Both products
- Under evaluation
AMASE - available on market 2014 - because its not a bio pesticide

- PGPR (Plant growth promoting rhizobacteria)
- Make nutrients available for plants; phosphorus, sulphur, calcium, nitrogen
- Better and faster emergence, faster growth, earlier and larger yield with improved quality
- Potential for combinations
ThermoSeed in Baltic area
- in cooperation with Incotec

*The cleanest seeds in the world*
ThermoSeed - mode of action
Inspired by Louise Pasteur

Efficient interval

Germination

Infection rate

Intensity

Min    Max
0    100
2005 ThermoSeed, Sweden
Capacity 15 000 ton/year
Financed by LIFE program EU
(STIIM Best of the best)
ThermoSeed 2012 Norway
Annual production capacity 30 000 ton.
= 50% of cereal seed demand in Norway!
= Replace 15% of total use of fungicide!
= IPM in reality!
BARRIERS EXIST
– In Information material, regulations and laws

• By routine authorities talk and inform about seed dressing but not seed treatment.

• France: Nematode infected luzern seeds must by law be treated with chemicals. ThermoSeed has showed excellence results. A change is underway but it takes time and seeds discarded meanwhile.
Swedish organic certification organization have problems to approve basic fermentation ingredients such as; Glucose, NaCl, K$_2$HPO$_4$ and NaOH because these compounds are not included in the Council Regulation (EC) No 834/2007.

The compounds are necessary for pH-regulation during the fermentation process to produce microorganisms (the active ingredient in biopesticides).
EXAMPLE 2 - UK
Organic certification organization in UK have denied to approve a dye in our biological seed treatment product CERALL.

The dye is not included in the Council Regulation (EC) No 834/2007. But the dye is approved for use in food. Treated seed must be colored by law. Cerall will not be available!!
Proposals to support IPM in reality

• Long term. 15-20 year
  - Finance and initiate designated, R&D programs involving academia and companies. Be open minded!

• Mid term. 5-10 year
  - Finance demonstration /technology transfer projects. It must be lead by involved companies.
  - Create seed capital foundations to support the goals.
  - Support registration work. Revise procedure!
Proposals to support IPM in reality

• Short term. 1-5 year
  - Use product/technology purchasing as a tool.
  - Focus on conventional farming and combinations.

• Urgent 0-5 year.
  - Revise existing text in laws, regulations, advice to be including the goals instead of excluding.
  - Be very clear with goals.
Thank You for your attention

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