



Lantmännen BioAgri

- **Innovative company founded in 1996**
- **Biological control and plant growth stimulation**
- **Naturally occurring organisms**
Thermoseed in Scandinavia

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- 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%

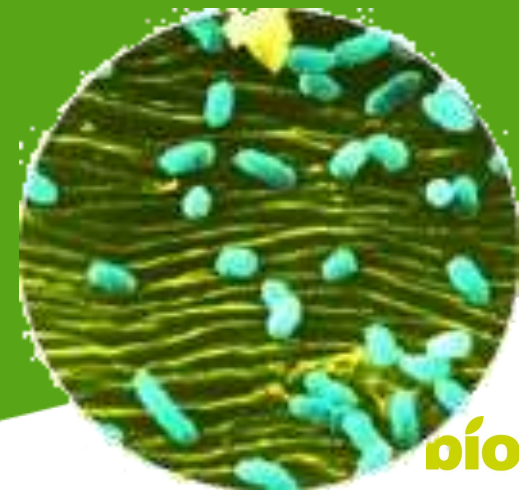
Cedress, 2/3 of wining peas area in Sweden. In EU earliest 2017?

Carrots new 2013. 10% of area in Sweden. In EU earliest 2017?

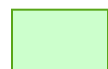
- ThermoSeed in Norway will replace 50 000 liter, 50% of certified seed. Introduced 2012.
- We expand!

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



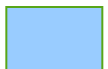
Cedomon / barley and oats, (spelt)



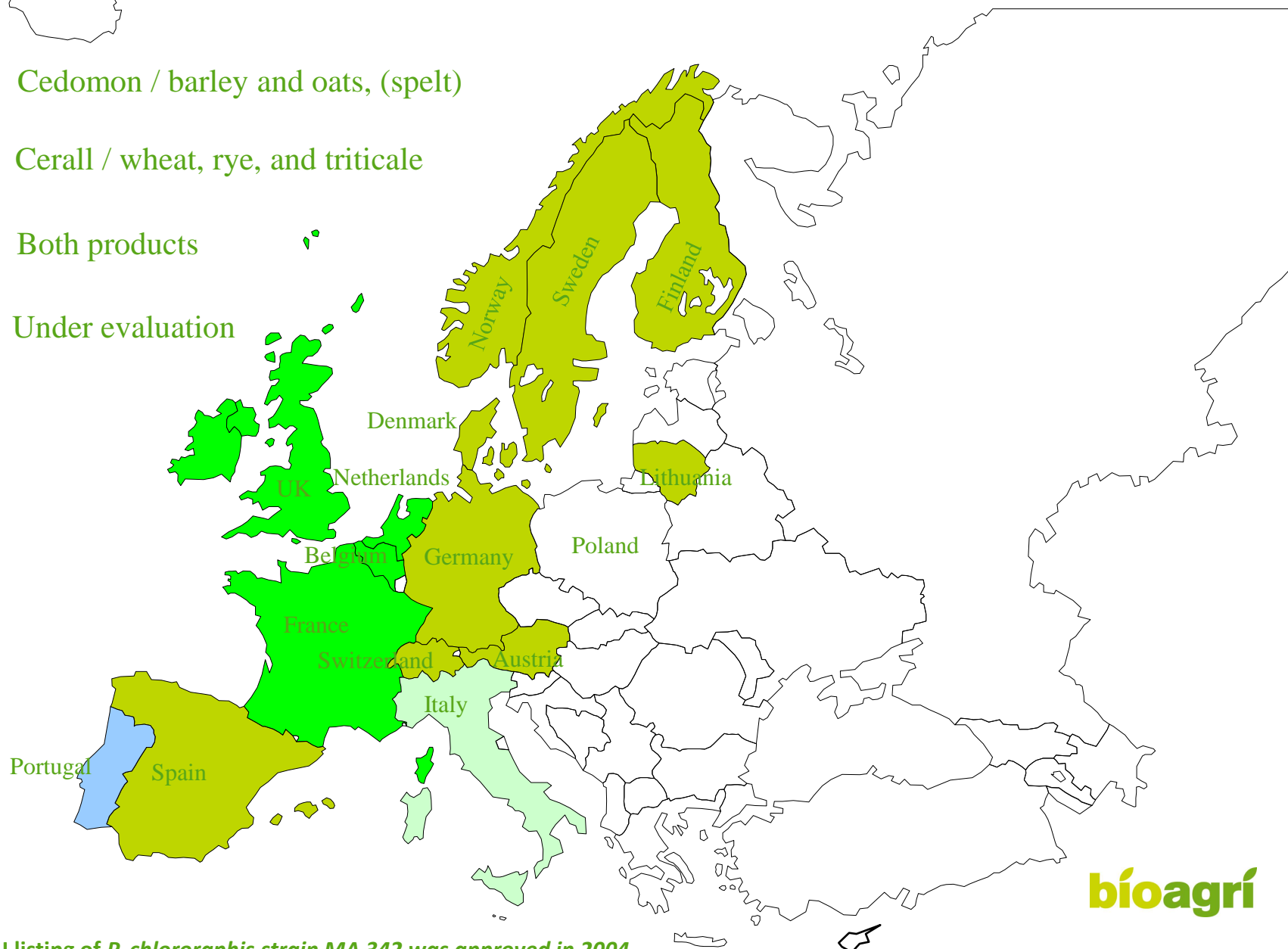
Cerall / wheat, rye, and triticale



Both products



Under evaluation



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

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

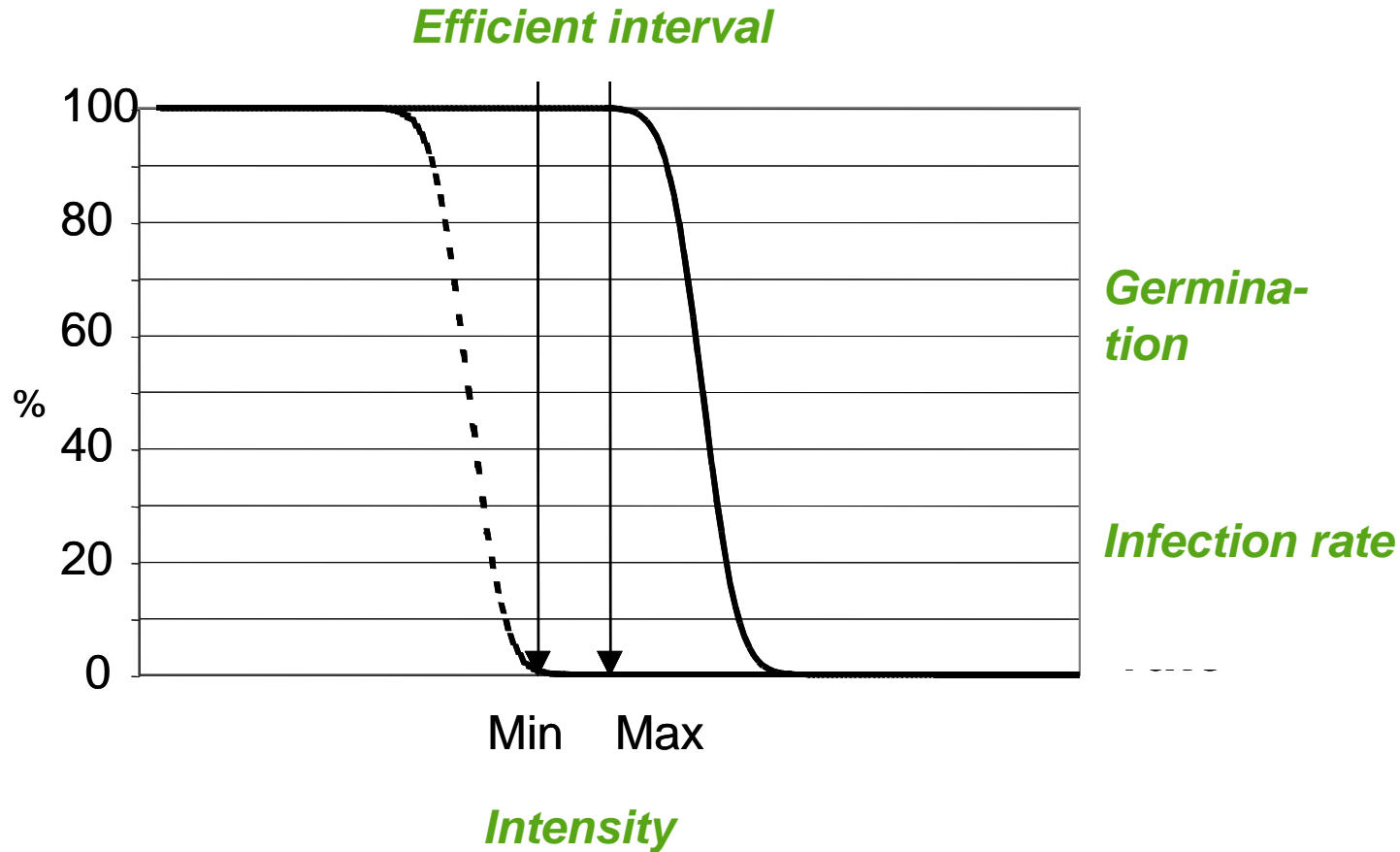
*The cleanest
seeds in the
world*





ThermoSeed - mode of action

Inspired by Louise Pasteur







2005 ThermoSeed, Sweden
Capacity 15 000 ton/year
Financed by LIFE program EU
(STIIM Best of the best)

An aerial photograph of a large, vibrant yellow rapeseed field, showing the rows of crops and the surrounding landscape.

Welcome to the inauguration
the first commercial ThermoSeed processing
plant in Skara, September 13, 2005.

ThermoSeed ACANOVA 

**På världens
ackraste arena
är det bara
resultatet
som räknas.**



Lantmännen

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.**

Organic certification of bio pesticides - example no 1, Sweden

Swedish organic certification organization have problems to approve basic fermentation ingredients such as; Glucose, NaCl, K_2HPO_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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