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Opening Door for Sustainable Agriculture

**New Registration of
Pythium oligandrum against
Ear Fusarioses in Cereals**



Registration

- **Polyversum**
 - Commercial formulated product
 - Newly registered against Ear fusarioses in Czech Republic
 - Wheat and Spring Barley
- ***Pythium oligandrum* M1**
 - listed on Annex 1107/2009 EC, in accordance to 540/2011

Ear fusarioses

- What is their impact?
 - human health (mycotoxins in food and feeding chains)
 - processing quality of harvested grain



Metabolites of Fusarium

- Mycotoxins
 - Deoxynivalenol (DON)
 - Deoxynivalenol-3-glycoside (D3G)
 - x-acetyl DON (ADONs)
 - Enniatins
 -
- Where we are meeting mycotoxins:
 - Cereals food, bakery products
 - Malt and beer production
 - Feeding for animals

CURRENT SOLUTIONS

Conventional farming

- Chemical fungicides
- Crop rotation

Organic farming

- Crop rotation
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Concerns

- Limited Crop rotation
- Development of resistance
- Safety concerns
 - Food safety
 - Environment
 - Operators and bystanders
- Food safety (metabolites)

MODES OF ACTION

1. MYCOPARASITISM

Direct control of plant pathogenic microorganisms by hyphal activity, enzymatic degradation

2. INDUCTION OF RESISTANCE

Inhibition of growth and development of pathogenic microorganisms by stimulating resistance related genes influencing morphological and biochemical barriers in plant tissues

3. GROWTH STIMULATION

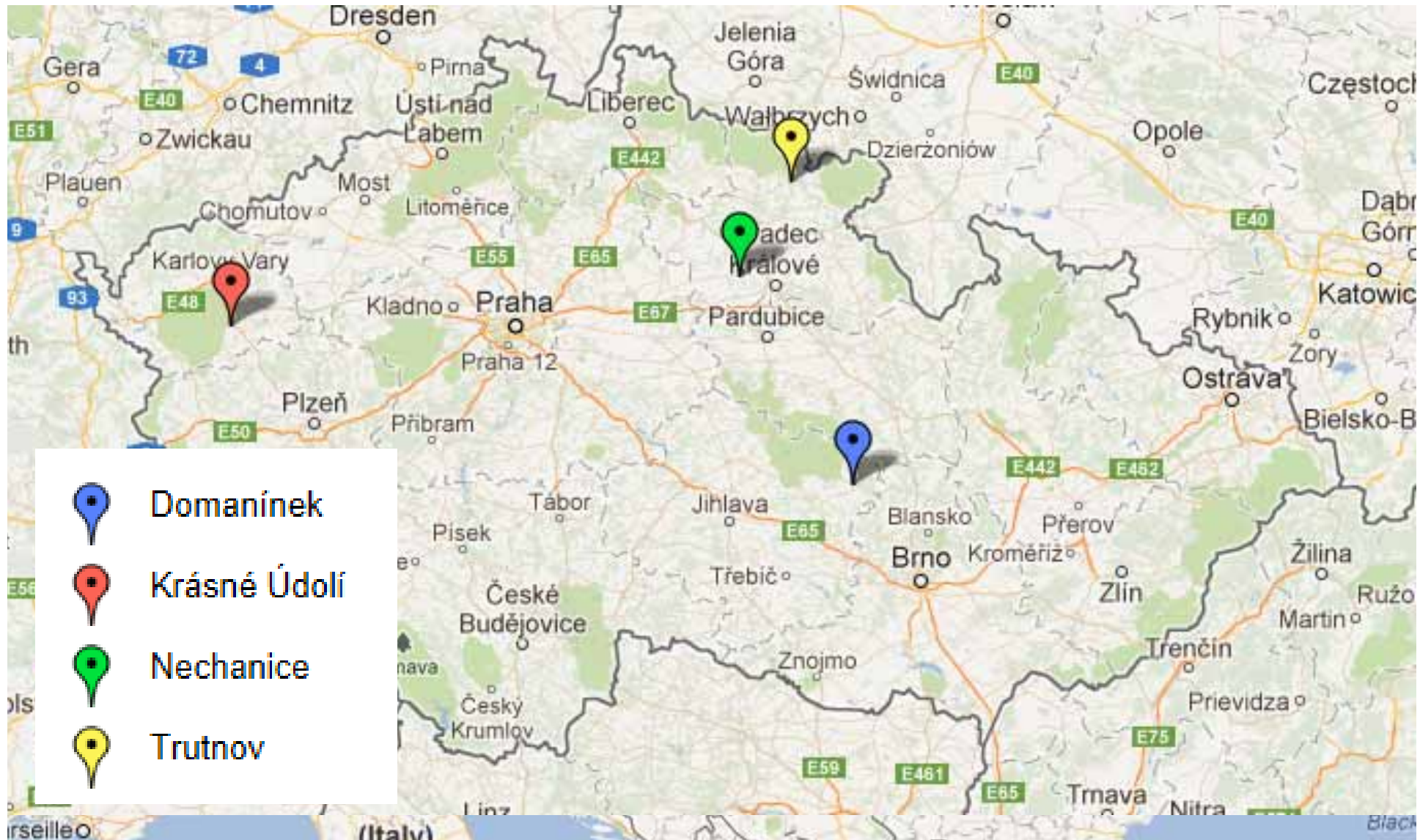
EFFICACY TRIALS

- Crop: **Winter wheat, Spring Barley**
- Target pathogen: ***Fusarium spp.***
- Country: Czech republic, Central zone EU
- 2006 - 2011
- Trial stations / locations:
 - Domanínek, altitude 550 AMSL
 - Krásné údolí, altitude 640 AMSL
 - Nechanice, altitude 260 AMSL
 - Trutnov, altitude 430 AMSL

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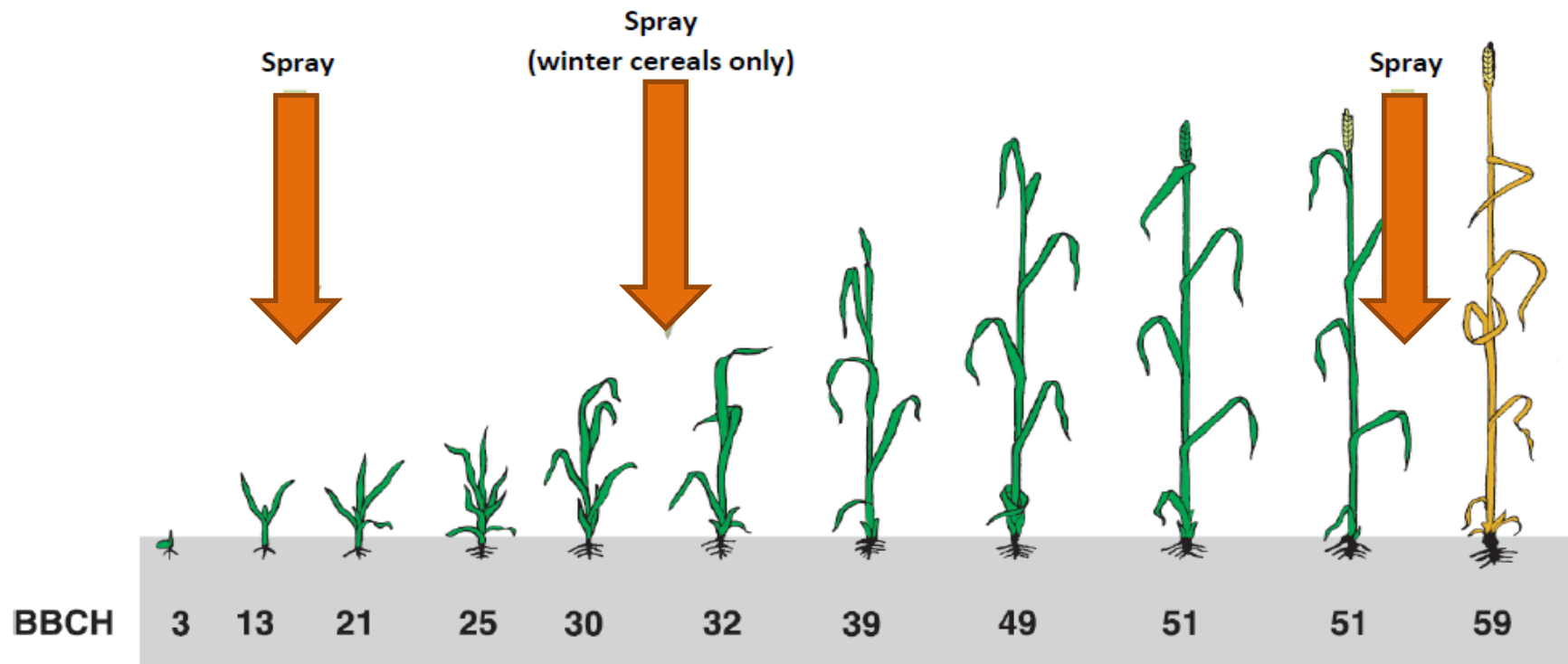
Trial stations



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Timing of applications



Crop	Target diseases	Dosage	PHI	Remarks
Cereals	Eyespot of Cereals Fusarioses Rusts Take-all Leave spots diseases	0.1 kg/ha	0	300 – 400 l of water/ha

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Efficacy and yield Winter wheat

Efficacy in %	average	2006	2007	2009	2010	2011
Tebuconazole 250 g/ha	84,33%	70,54%	93,74%	77,27%	85,96%	95,48%
Polyversum 3 x 100g/ha	80,05%	71,43%	86,13%	70,16%	82,27%	93,95%

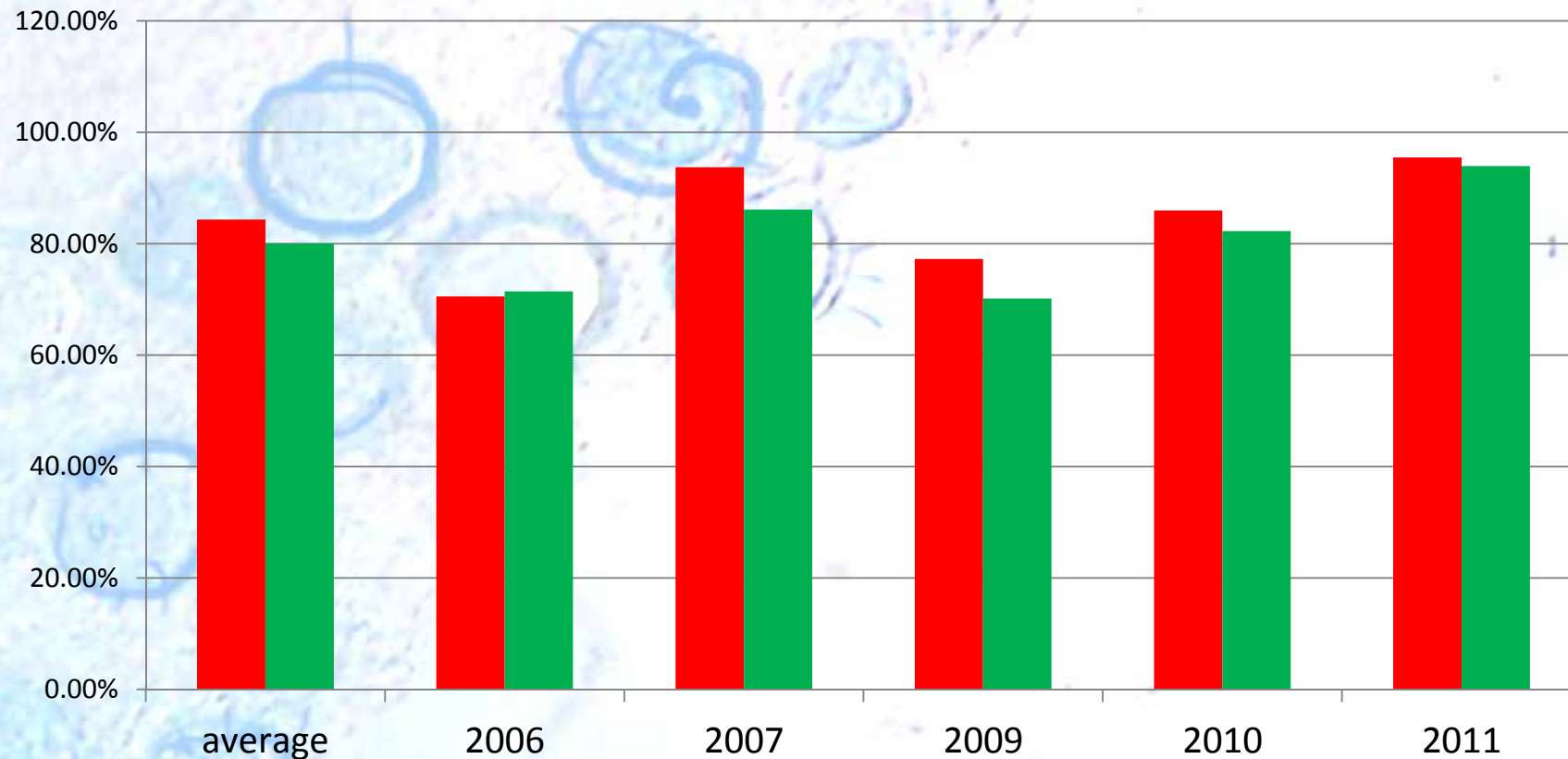
Disease pressure in %	12,73%	4,67%	18,62%	20,61%	10,38%	4,35%
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Yield in %	average	2006	2007	2009	2010	2011
Tebuconazole 250 g/ha	118,00%	134,70%	112,16%	128,61%	105,00%	109,66%
Polyversum 3 x 100g/ha	111,82%	110,71%	110,03%	117,27%	105,92%	111,01%

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Efficacy in % Winter Wheat



■ Tebuconazole 250 g/ha (BBCH 61-65)

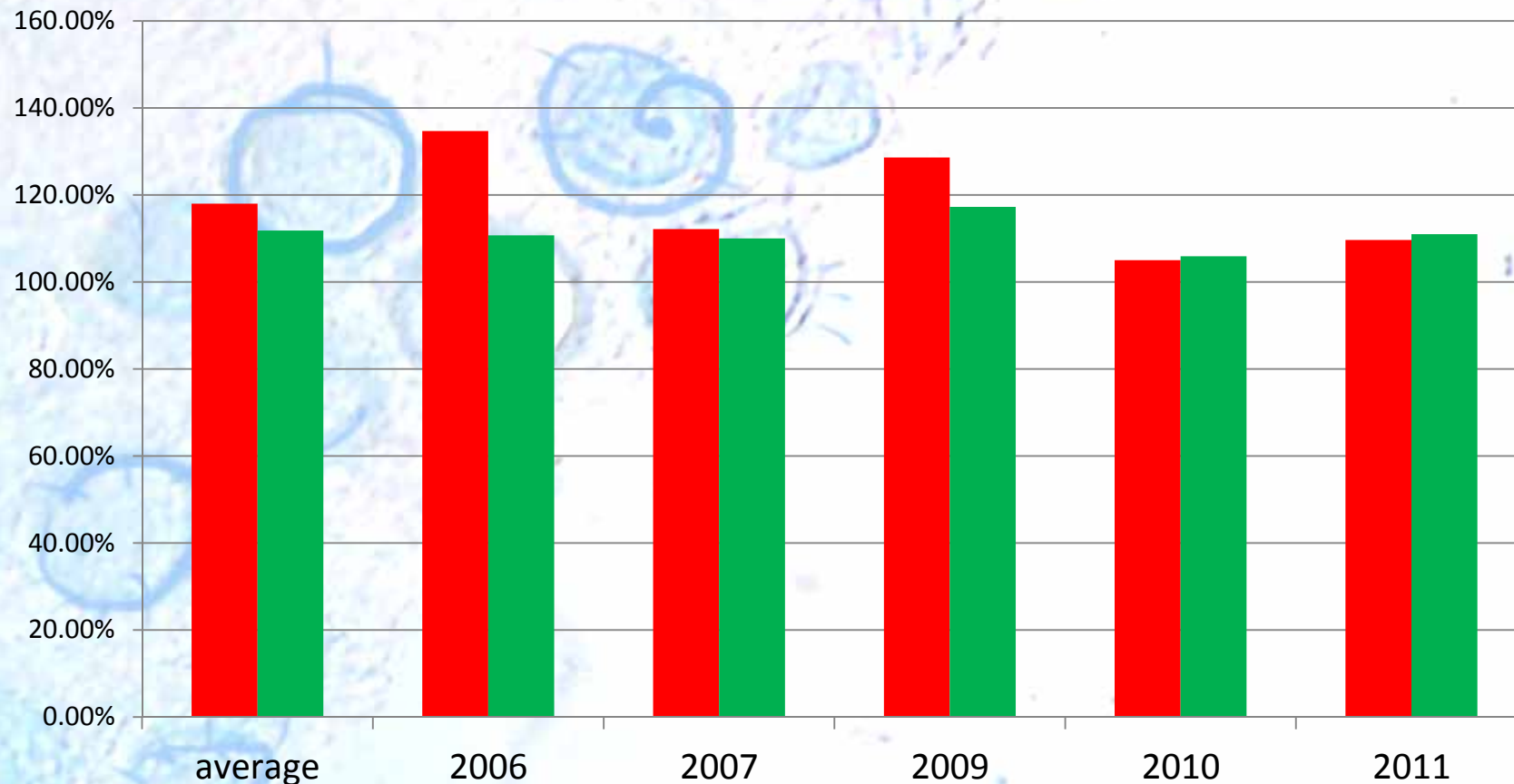
■ Polyversum 3 x 100g/ha (BBCH 14-16, BBCH 30-40 and BBCH 55-65)



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Yield in % Winter Wheat



■ Tebuconazole 250 g/ha (BBCH 61-65)

■ Polyversum 3 x 100g/ha (BBCH 14-16, BBCH 30-40 and BBCH 55-65)



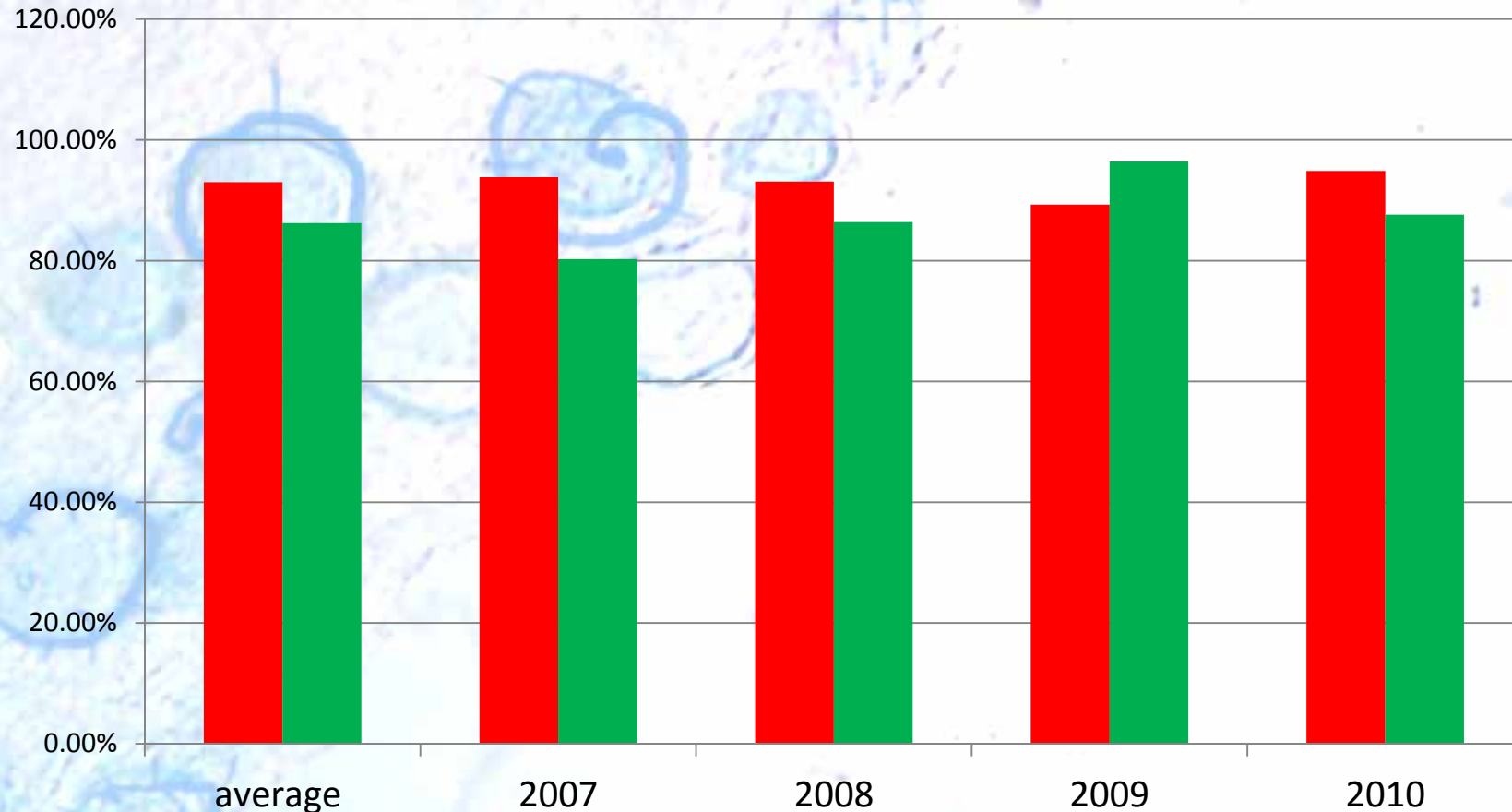
Efficacy and Yield Spring Barley

Efficacy in %	average	2007	2008	2009	2010
Tebuconazole 250 g/ha	93,00%	93,83%	93,10%	89,29%	94,85%
Polyversum 2 x 100g/ha	86,23%	80,26%	86,40%	96,43%	87,63%
Disease pressure in %	20,41%	14,25%	28,68%	24,50%	12,10%
Yield in %	average	2007	2008	2009	2010
Tebuconazole 250 g/ha	112,45%	112,46%	110,27%	95,94%	133,31%
Polyversum 2 x 100g/ha	109,41%	108,39%	106,85%	94,21%	131,80%

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Efficacy in % Spring Barley



■ Tebuconazole 250 g/ha (BBCH 61-65)

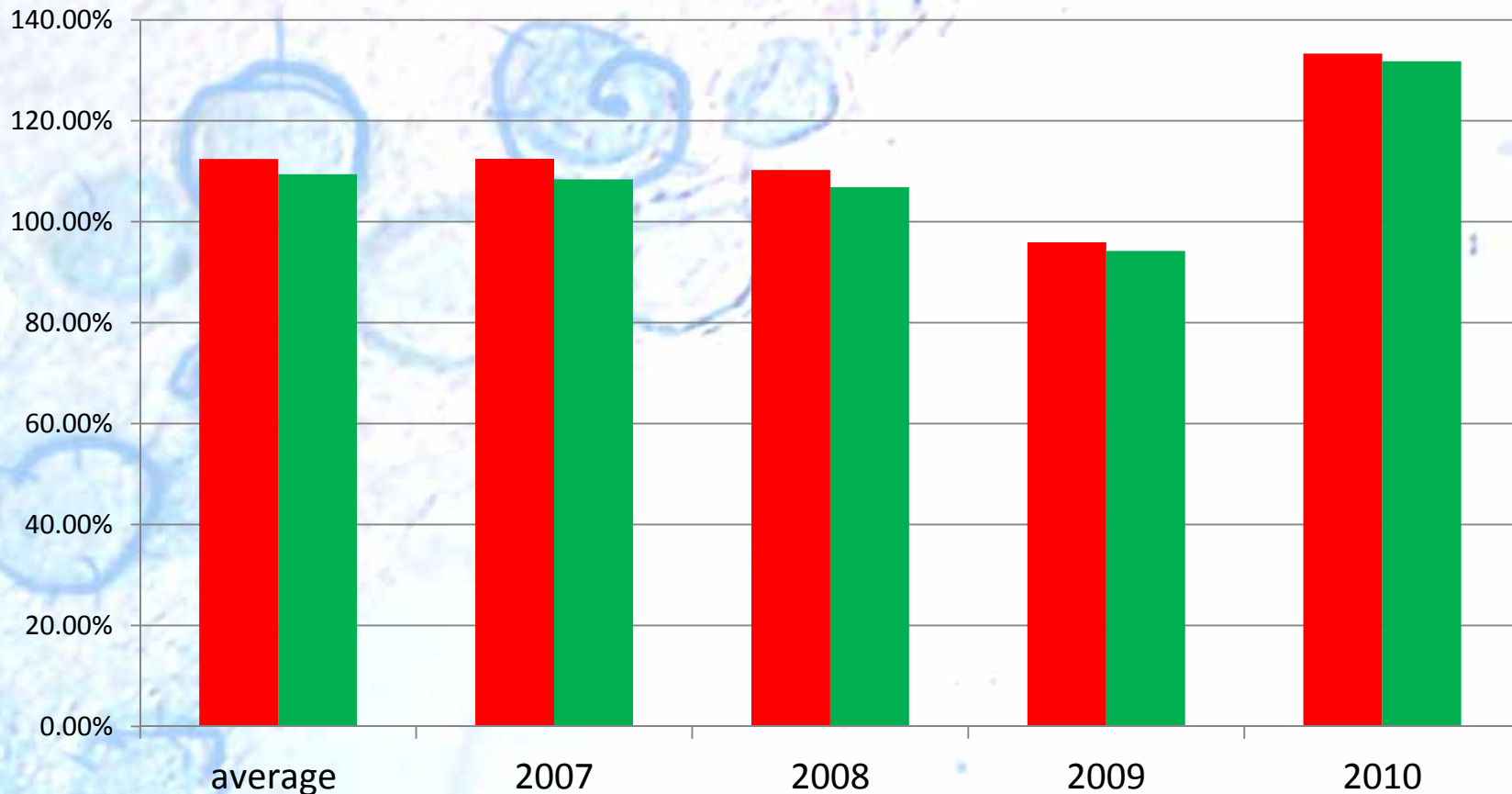
■ Polyversum 2 x 100g/ha (BBCH 21-23 and BBCH 55-65)

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Yield in %

Spring Barley



Summary

- ✓ High efficacy
- ✓ Yield increase
- ✓ Reliable, Safe, Environment friendly
- ✓ Fully competitive to chemical products

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**THANK YOU FOR YOUR
ATTENTION**

