

ADAMA



**Development and experiences  
with Banjo Forte**

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May 2015

# Farmer centric solutions provided under our global brand

Extensive,  
Differentiated  
Offering

From  
**20+**  
Corporate  
brands

To  
**1**  
Master  
brand

From  
**100's**  
of product  
brands

To  
**2**  
distinct umbrella  
ranges

From  
**40**  
Individual  
websites

To  
**1**  
global website  
with uniform  
local sites

## Who we are

**No. 1**

The world's leading provider of off-patent crop protection products

**7**

The seventh largest agrochemicals company in the world

**\$3.2bn**

In annual sales

**\$60bn**

In the \$60bn global crop protection and non-crop markets

**3x**

Long-term historical growth of 3x the global industry's growth

**120**

Sales in over 120 countries with direct presence in all key Ag markets

**>300**

Active Ingredients, building blocks for differentiated offering

**Only**

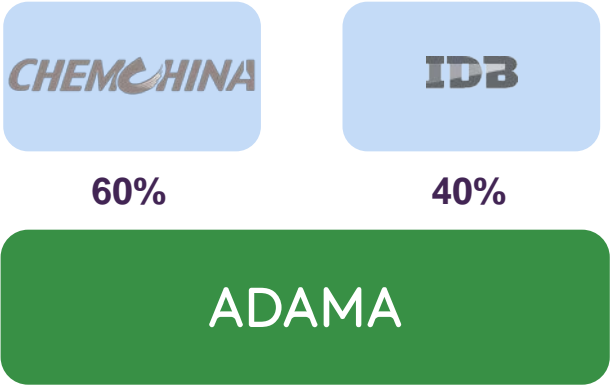
Integrated China-Global value chain



# Our partnership with ChemChina...

Unique Positioning and Access to China

2011 – Adama taken private through landmark agro-industry transaction



Adama to acquire and integrate selected AgChem businesses of ChemChina

## Our strong R&D capabilities provide us with the ability to develop unique product combinations

Extensive,  
Differentiated  
Offering



- Banjo Forte, a unique combination of two well known active ingredients (fluazinam and dimethomorph)
- First registration in Europe in 2012, now registered and sold in most European countries
- Efficacy on potato late blight, side effect on sclerotinia sclerotiorum
- Can be applied during the whole season
- 4 Applications per season, 0,75 – 1,0 ltr/ha

Launched in Europe in 2012

European rollout in key markets from  
2012 - 2015

Targeting significant sales within 5 years



# ADAMA

## Dimethomorph Monitoring Europe Results 2014



Sensitivity of *Phytophthora infestans* in field samples from different regions of Europe towards Dimethomorph

## Dimethomorph Monitoring Europe 2014



Country	Locations
Netherlands	4 (4)
Belgium	1 (2)
Germany	3 (4)
France	1 (2)
UK	2 (4)
Poland	1 (2)
Denmark	1 (2)
Portugal	2 (2)
Spain	2 (2)
Greece	1 (2)
<b>Samples</b>	<b>18 (30)</b>
<b>Total Isolates</b>	<b>156</b>

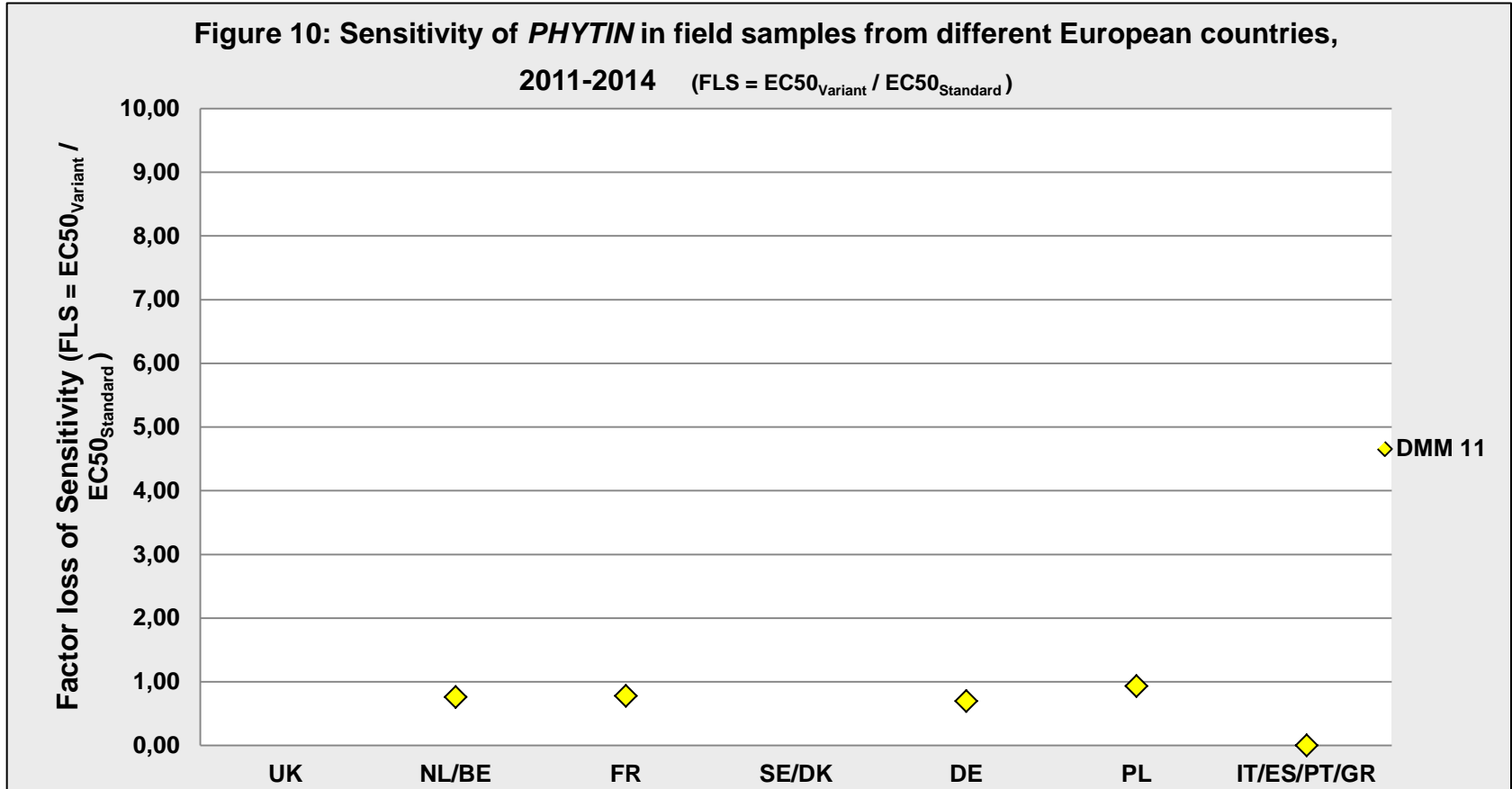
## Sensitivity of PHYTIN in field samples from different regions of Europe towards DMM, 2014

EpiLogic sample ID	Next town	Variety	n	MEC50	EC50min	EC50max
<b>United Kingdom</b>						
Pi-FCS-014	Polbathic	Estima	10	<b>3,67</b>	<b>2,33</b>	<b>5,48</b>
Pi-FCS-026	St. Cleer	Avalanche	2	<b>6,10</b>	<b>5,92</b>	<b>6,28</b>
<b>Netherlands</b>						
Pi-FCS-018	Arnhem	Bintje	10	<b>4,63</b>	<b>3,57</b>	<b>5,48</b>
Pi-FCS-019	Lelystad	Desiree	10	<b>2,55</b>	<b>1,73</b>	<b>3,83</b>
Pi-FCS-020	Wageningen	Desiree	10	<b>3,14</b>	<b>1,73</b>	<b>5,48</b>
Pi-FCS-021	Emmen	Desiree	10	<b>4,29</b>	<b>1,83</b>	<b>6,28</b>
<b>Belgium</b>						
Pi-FCS-022	Bassilly	Bintje	6	<b>5,22</b>	<b>4,65</b>	<b>6,28</b>
<b>France</b>						
Pi-FCS-010	Maricourt	Bintje	10	<b>2,80</b>	<b>2,10</b>	<b>3,11</b>
<b>Denmark</b>						
Pi-FCS-028	Slagelse	Dianela	10	<b>4,99</b>	<b>3,57</b>	<b>9,65</b>
<b>Germany</b>						
Pi-FCS-007	Goldenstedt	Bintje	10	<b>2,34</b>	<b>1,73</b>	<b>3,39</b>
Pi-FCS-006	Schwalmtal	Bintje	10	<b>3,49</b>	<b>1,99</b>	<b>5,07</b>
Pi-FCS-013	Kirchheim	Maxilla	10	<b>4,15</b>	<b>3,57</b>	<b>5,48</b>
<b>Poland</b>						
Pi-FCS-016			3	<b>2,68</b>	<b>2,04</b>	<b>3,83</b>
<b>Portugal</b>						
Pi-FCS-002	Esposende	Picasso	10	<b>3,26</b>	<b>2,51</b>	<b>4,78</b>
Pi-FCS-003	Esposende	Picasso	10	<b>3,15</b>	<b>2,85</b>	<b>3,83</b>
<b>Spain</b>						
Pi-FCS-035	Xinzo de Limia	Fontane	5	<b>5,34</b>	<b>4,31</b>	<b>6,62</b>
Pi-FCS-036	Xinzo de Limia	Royal	10	<b>3,77</b>	<b>2,85</b>	<b>5,48</b>
<b>Greece</b>						
Pi-FCS-001	Kyparissia	Spunta	10	<b>3,59</b>	<b>2,85</b>	<b>5,48</b>
<b>Sensitive Standard</b>						
EL1			5	<b>3,47</b>	<b>2,33</b>	<b>6,12</b>

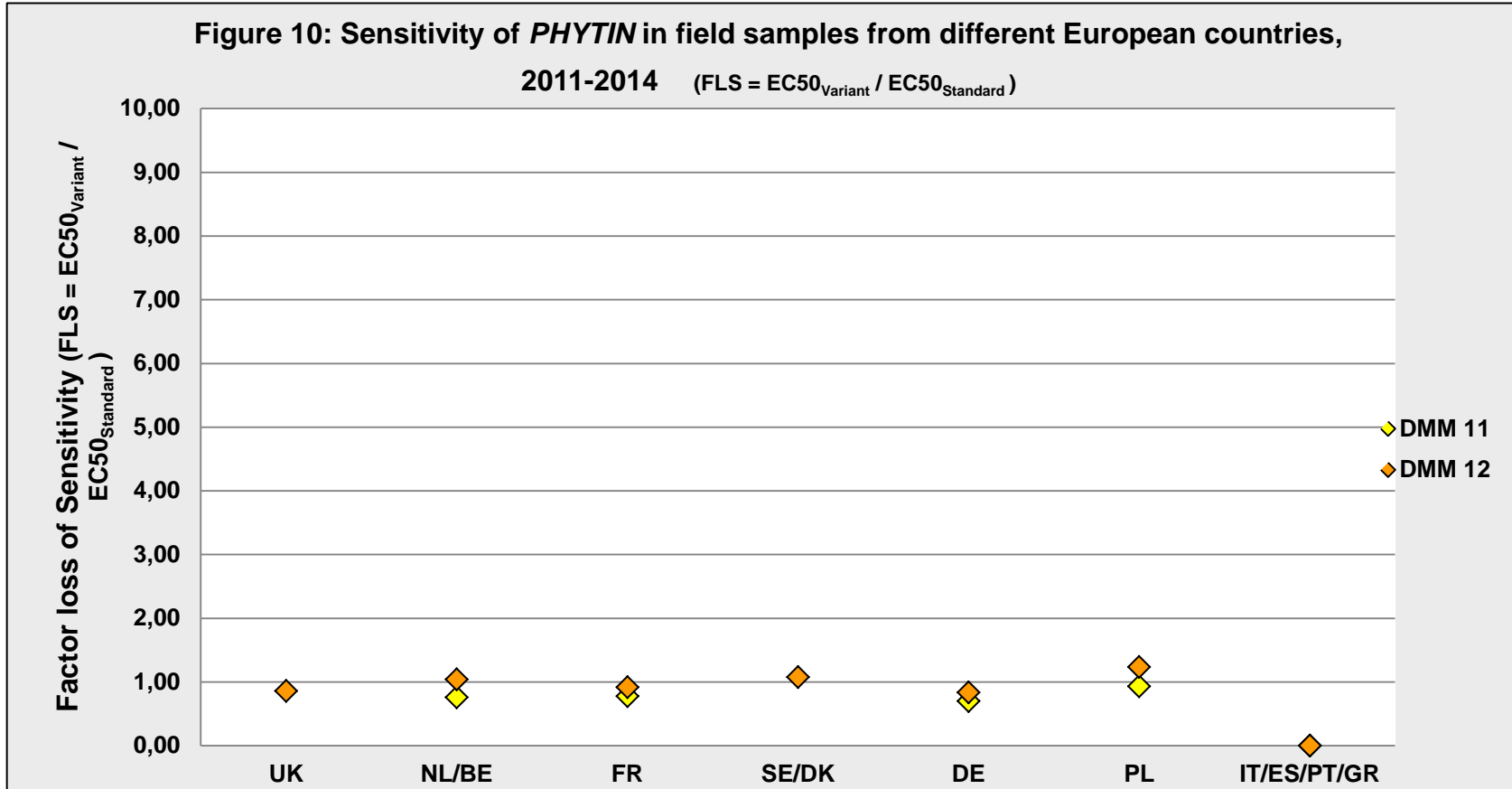
MEC50: Mean EC50 of the sample (geometric mean); EC50min: Lowest EC50 in the sample; EC50max: highest EC50



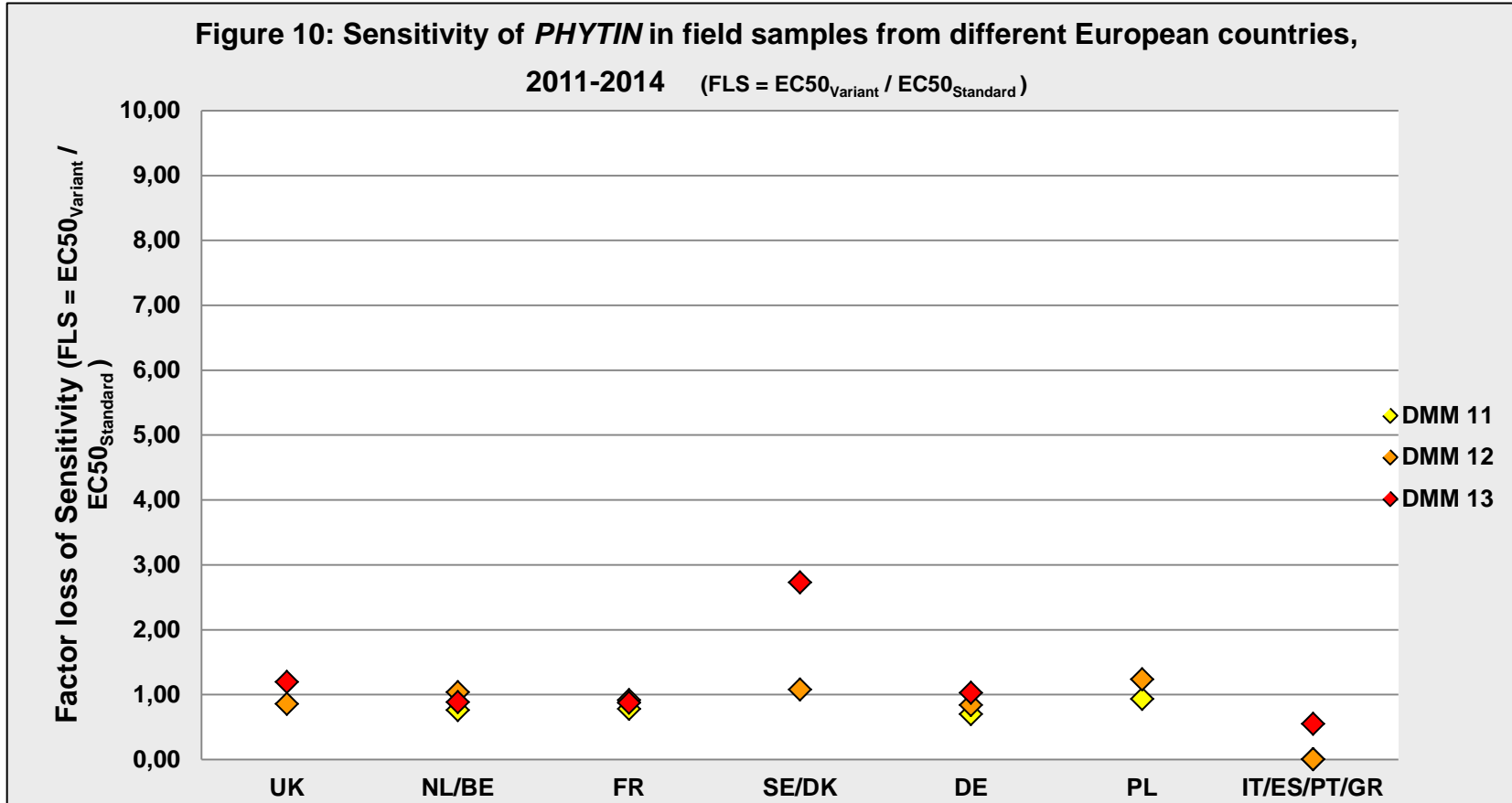
# Sensitivity of PHYTIN to Dimethomorph



# Sensitivity of PHYTIN to Dimethomorph

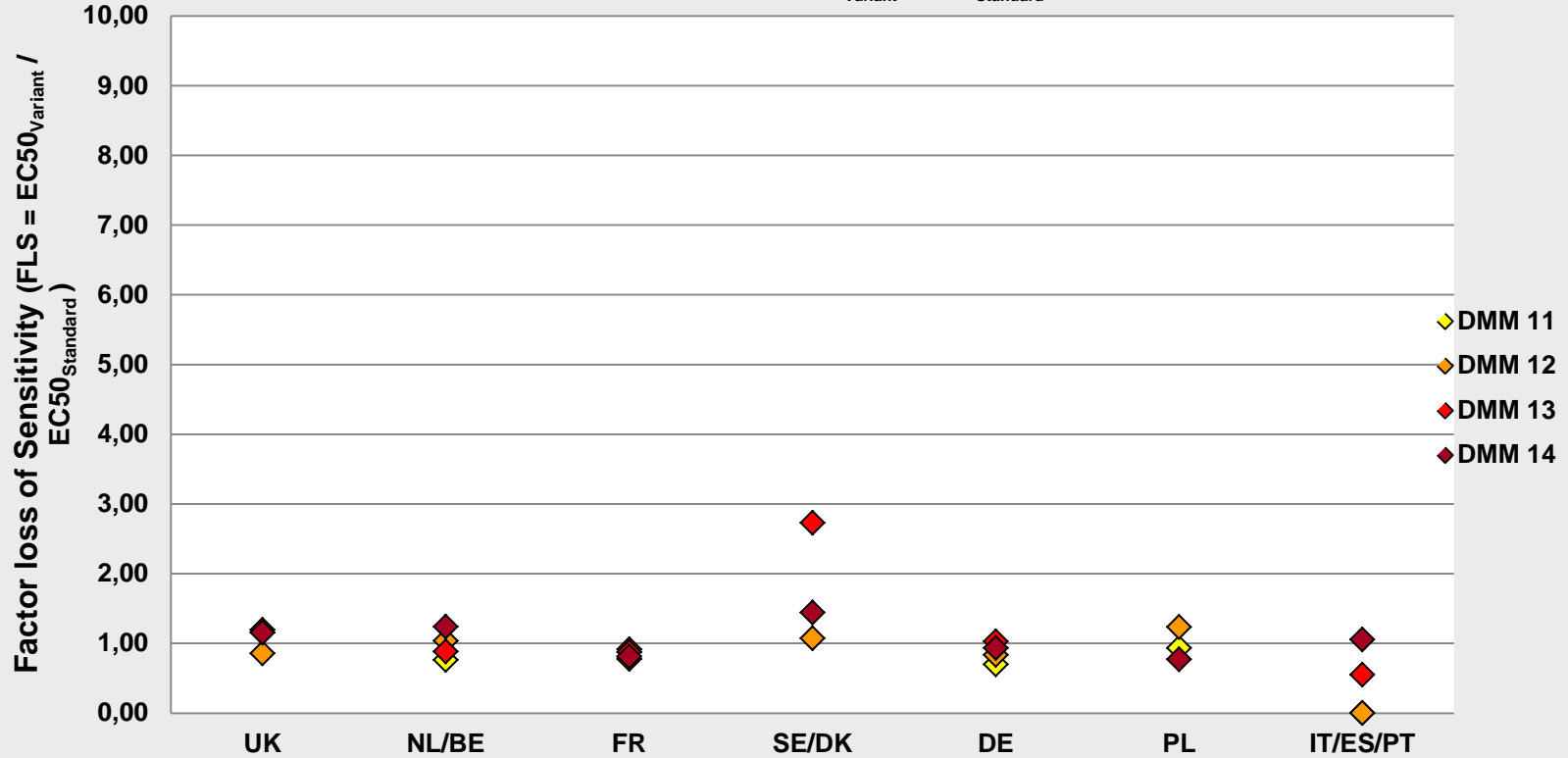


# Sensitivity of PHYTIN to Dimethomorph



# Sensitivity of PHYTIN to Dimethomorph

Figure 10: Sensitivity of *PHYTIN* in field samples from different European countries, 2011-2014 (FLS =  $EC50_{\text{Variant}} / EC50_{\text{Standard}}$ )





### PHYTIN – Summary:

- In total 18 (30 planned) samples were sent to EPILOGIC to be analyzed.
- The highest MEC50 value was calculated from an English sample with 6,10 mg/l a.i.
- the MEC50 of the sensitive standard is 3,47 mg/l a.i.
- No significant difference of MEC50 values compared to sensitive standard
- compared to 2013 data no significant change of EC 50 values



In all samples *Phytophthora infestans* showed full sensitivity against Dimethomorph

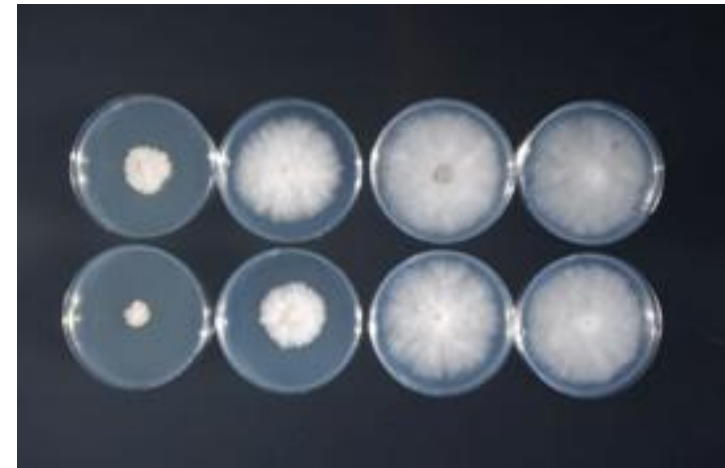
## Fitness *Phytophthora Infestans* isolates

Extensive,  
Differentiated  
Offering

- Aggressiveness index = sporulation \* germination rate \* growth

	Blue 13	Green 33	Pink 6
sporulation	6,8	0,5	40,1
germination rate	18,3	29	26,7
growth rate (mm/day)	4,2	4,2	4
Index	<b>540 (b)</b>	<b>68 (b)</b>	<b>4625 (a)</b>

N=1, PPO Lelystad, July, 2014



## Different phytophthora clones

Extensive,  
Differentiated  
Offering

- Set up
- Potted potato plants
- Spray application: 17<sup>th</sup> April 2015  
UTC  
1,0 ltr/ha Banjo Forte  
Reference  
Reference
- Inoculation: 22<sup>nd</sup> April 2015
- Disease assessment: 27, 29 April, 1<sup>st</sup> May



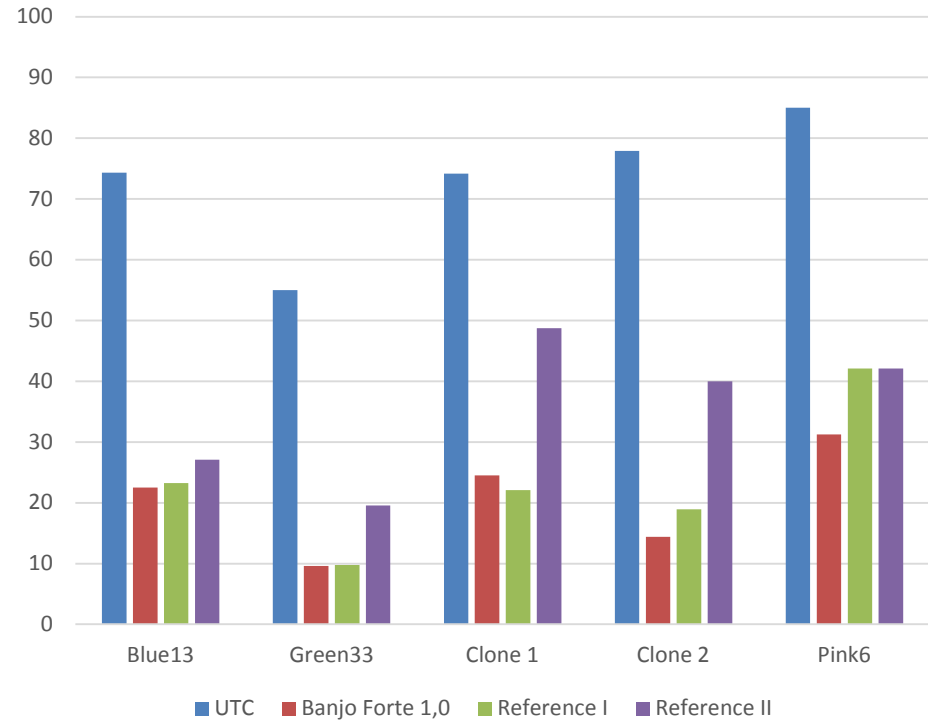
# Different phytophthora clones

Extensive,  
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N=1, PPO Lelystad, April 2015

Potato Late Blight severity (%)  
(average 3 assessments)





Product (Dose rate [litre or kg/ha])	Leaf blight	Tuber blight	New growth	Stem blight	Protectant	Curative	Anti sporulant	Rain-fastness	M
copper				●	●◀	0	0	●	C
dithiocarbamates (2.0) <sup>1</sup>	2.0	0.0		●	●●	0	0	●◀	C
chlorothalonil				◀	●●	0	0	●●◀	C
cyazofamid (0.5)	3.8	3.8	●●	●	●●●	0	0	●●●	C
fluazinam (0.4)	2.9			●	●●●	0	0	●●◀	C
zoxamide + mancozeb (1.8)	2.8			● <sup>5</sup>	●●●	0	0	●●◀	C
amisulbrom + mancozeb (0.5+2.0)	4.5	3.7		●	●●◀	0	?	●●●	C
ametoctradin + mancozeb (2.5)	3.7		?	?	●●◀	0	0	●●●	C
famoxadone + cymoxanil				●◀	●●	●●	●	●●◀	C
mandipropamid (0.6)	4.0		●●	●◀	●●●	● <sup>6</sup>	●◀	●●●	T
mandipropamid + difenoconazole (0.6)	4.0		●●	●◀	●●●	● <sup>6</sup>	●◀	●●●	T
benthiavalicarb + mancozeb (2.0)	3.7			●◀ <sup>5</sup>	●●●	●◀	●	●●◀	T
cymoxanil + mancozeb				●◀	●●	●●	●	●●	T
cymoxanil + metiram				●◀	●●	●●	●	●●	T
cymoxanil + copper				●◀	●●	●●	●	●●	T
dimethomorph + mancozeb (2.4)	3.0			●◀	●●◀	●	●●	●●◀	T
dimethomorph + fluazinam (1.0)	3.7	3.3	●	●	●●◀	●	●●	●●◀	T
fenamidone + mancozeb (1.5)	2.6			●◀ <sup>5</sup>	●●◀	0	●◀ <sup>5</sup>	●●	T
(zoxamide + cymoxanil) + fluazinam (0.45+0.4)	4.3								T
mandipropamid + cymoxanil (0.6)	4.4								T
benalaxyl-M + mancozeb <sup>2</sup>	3.0		●●	●●	●●◀	●●◀	●●◀	●●●	S
metalaxyl-M + mancozeb <sup>2</sup>			●●	●●	●●◀	●●◀	●●◀	●●●	S
metalaxyl-M + fluazinam <sup>2</sup>			●●	●●	●●◀	●●◀	●●◀	●●●	S

# ADAMA



**Thank you**  
Olaf van Campen