

PROXANIL®



Curative and eradicator efficacy

**Workshop Late Blight 2010 Arras
Johan Desnoux**

PROXANIL®

- Is a product from AGRIPHAR S.A.
- Containing 50 g/l CYMOXANIL en 400 g/l PROPAMOCARB
 - **PROPAMOCARB (400 g/l)**
 - 2.5 l PROXANIL = 2.70 l TATTOO C / 1,60 l INFINITO
 - 2.0 l PROXANIL = 2.16 l TATTOO C / 1,28 l INFINITO
 - **CYMOXANIL (50 g/l)**
 - 2.5 l PROXANIL = 2.66 KG CURZATE M
 - 2.0 l PROXANIL = 2.22 KG CURZATE M
- Formulated as a suspension concentrate (SC)
- Dose rate: 2-2.5 l (depending country)



Definition curative activity,....

Curative activity - the fungicide is active against *P. infestans* during the immediate post infection period but before symptoms become visible, i.e. during the latent period.



...antispорulant activity (eradicant)

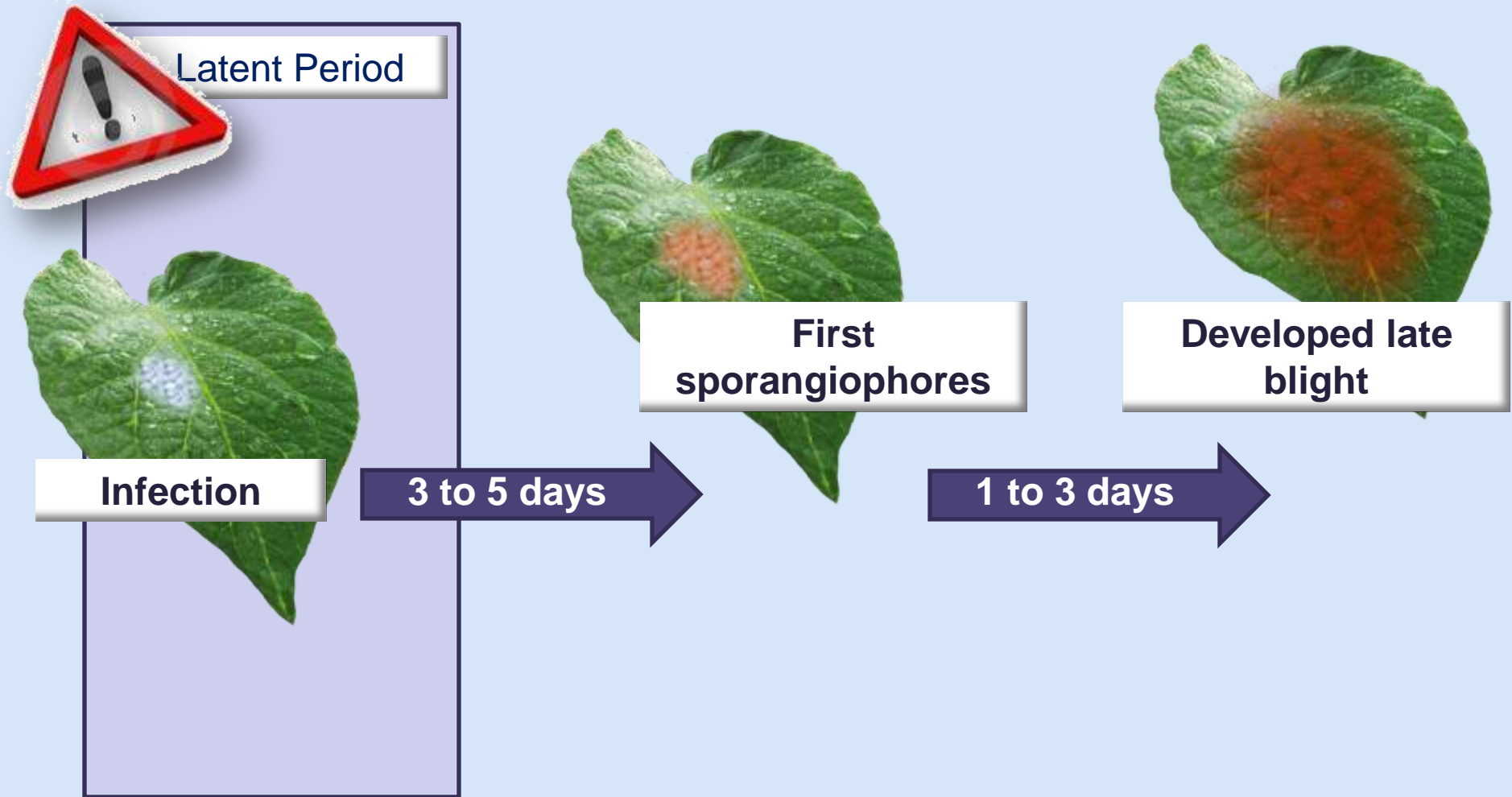
Antispорulant activity - *P. infestans* lesions are affected by the fungicide by decreasing sporangiophore formation and/or decreasing the viability of the sporangia formed.

Ninth Workshop of a European Network for Development of an
Integrated Control Strategy of Potato Late Blight
Tallinn, Estonia, 19-23 Oct 2005

Report of the fungicide sub-group:

Discussion of potato early and late blight fungicides, their properties & characteristics

Curative effect



Pot Trials



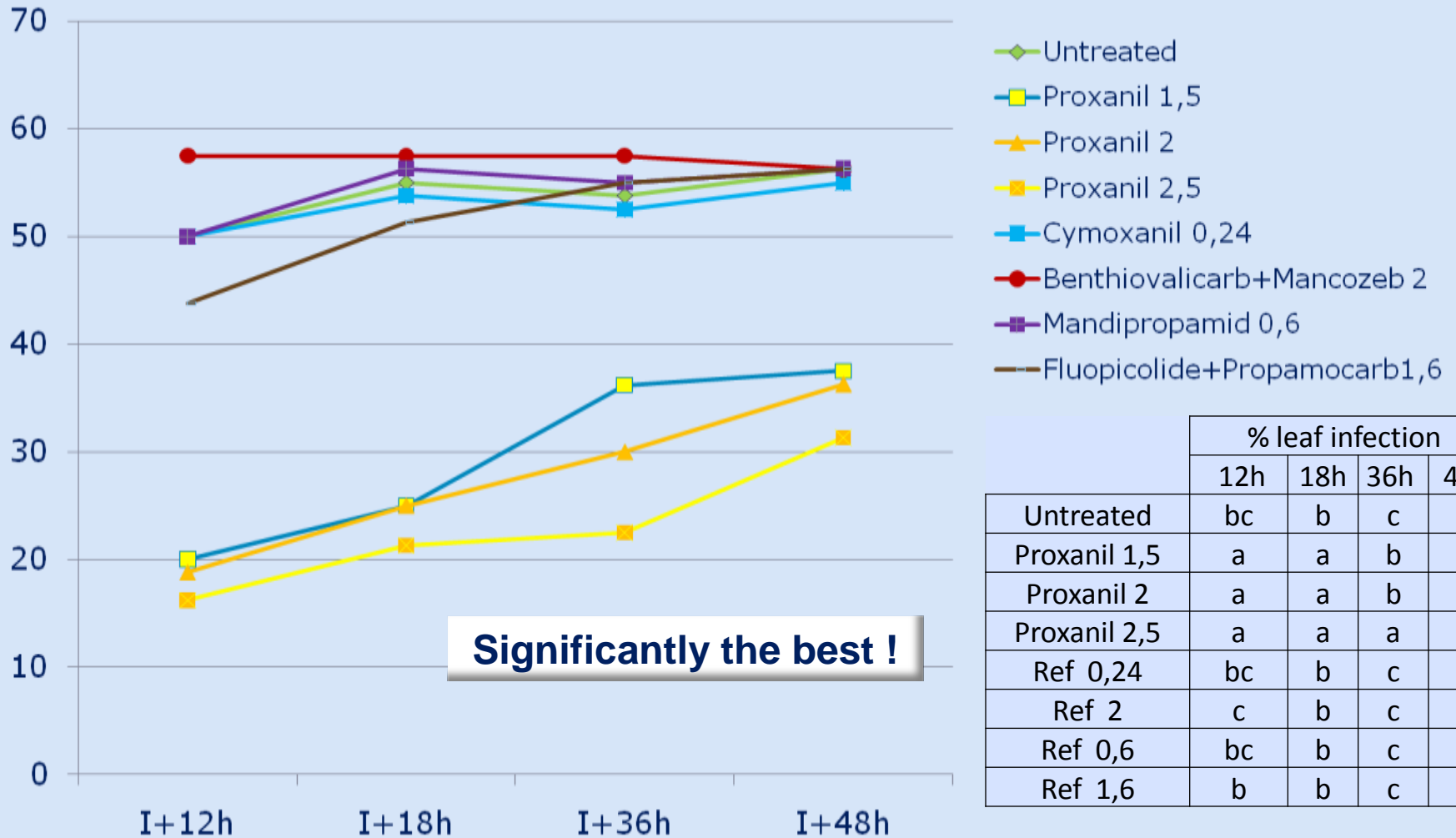
PPO Lelystad: Curative Effect 2008 Pot Trial

- 21.05.2008: Planting
- 18.06.2008: Inoculation (15-20 cm)
- Treatment at
 - I+12h, I+18h, I+36h, I+48h
- 4 repetitions

| Object | treatment | Dose/ha |
|--------|--------------------------|---------|
| 1 | Untreated | |
| 2 | Proxanil | 1.5 |
| 3 | Proxanil | 2 |
| 4 | Proxanil | 2.5 |
| 5 | Cymoxanil (45%) | 0.24 |
| 6 | Benthiovalicarb+Mancozeb | 2 |
| 7 | Mandipropamid | 0.6 |
| 8 | Fluopicolide+Propamocarb | 1.6 |

% Infected foliage

23.06.2008



PPO Lelystad: Curative Effect 2009 Pot Trial

I = Artificial infection

Treatments:

I+12h: Curative spraying

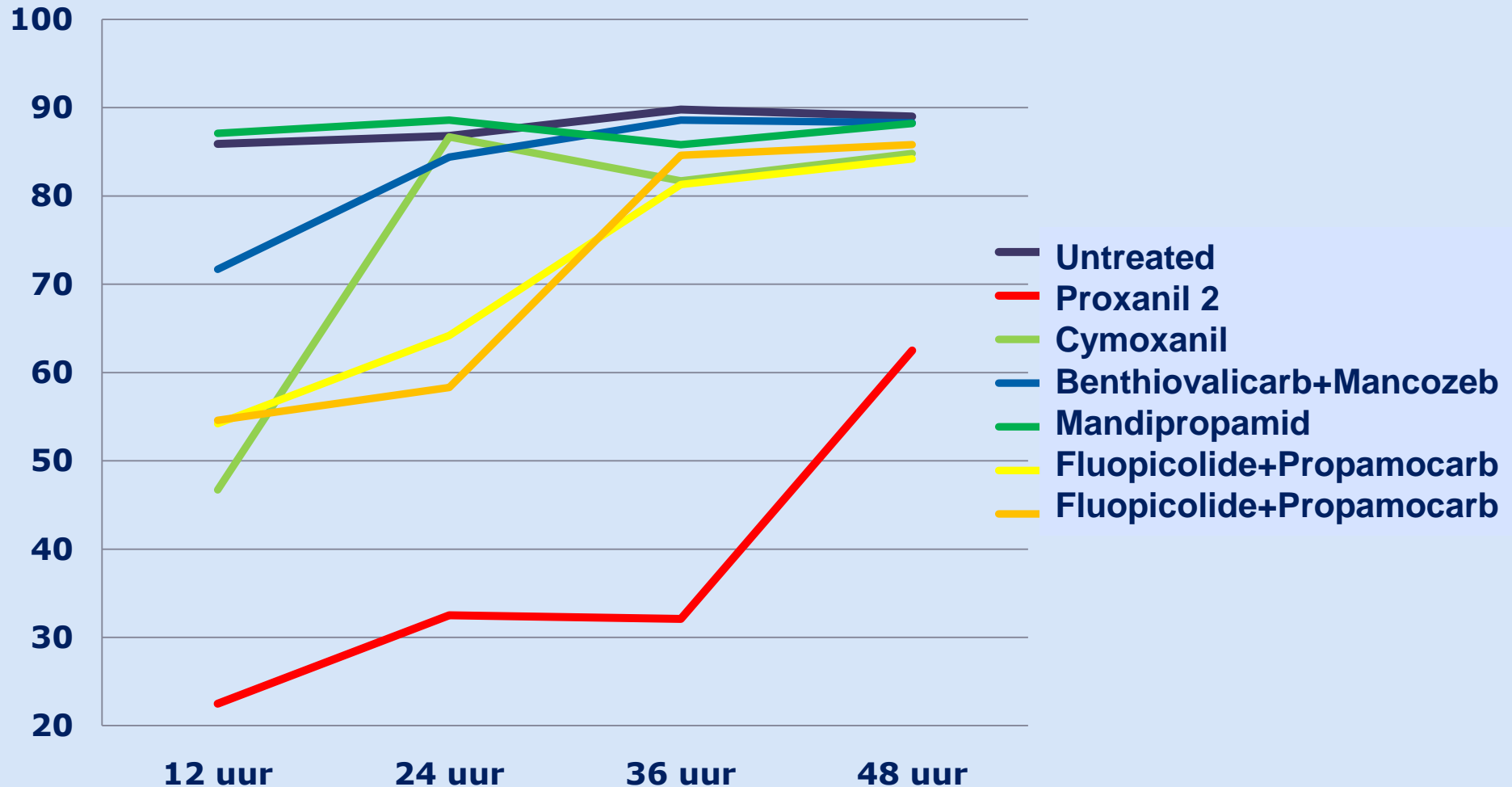
I+24h: Curative spraying

I+36h: Curative spraying

I+48h: Curative spraying

| Object | treatment | Dose/ha |
|--------|--------------------------|---------|
| 1 | Untreated | |
| 2 | Proxanil | 2,0 l |
| 3 | Cymoxanil (60%) | 0,2 l |
| 4 | Benthiovalicarb+Mancozeb | 2,0 kg |
| 5 | Mandipropamid | 0,6 l |
| 6 | Fluopicolide+Propamocarb | 1,2 l |
| 7 | Fluopicolide+Propamocarb | 1,6 l |

% Infected foliage



Visual effect



Untreated

BCP 336 F

Curzate
Partner

Valbon

Field trials



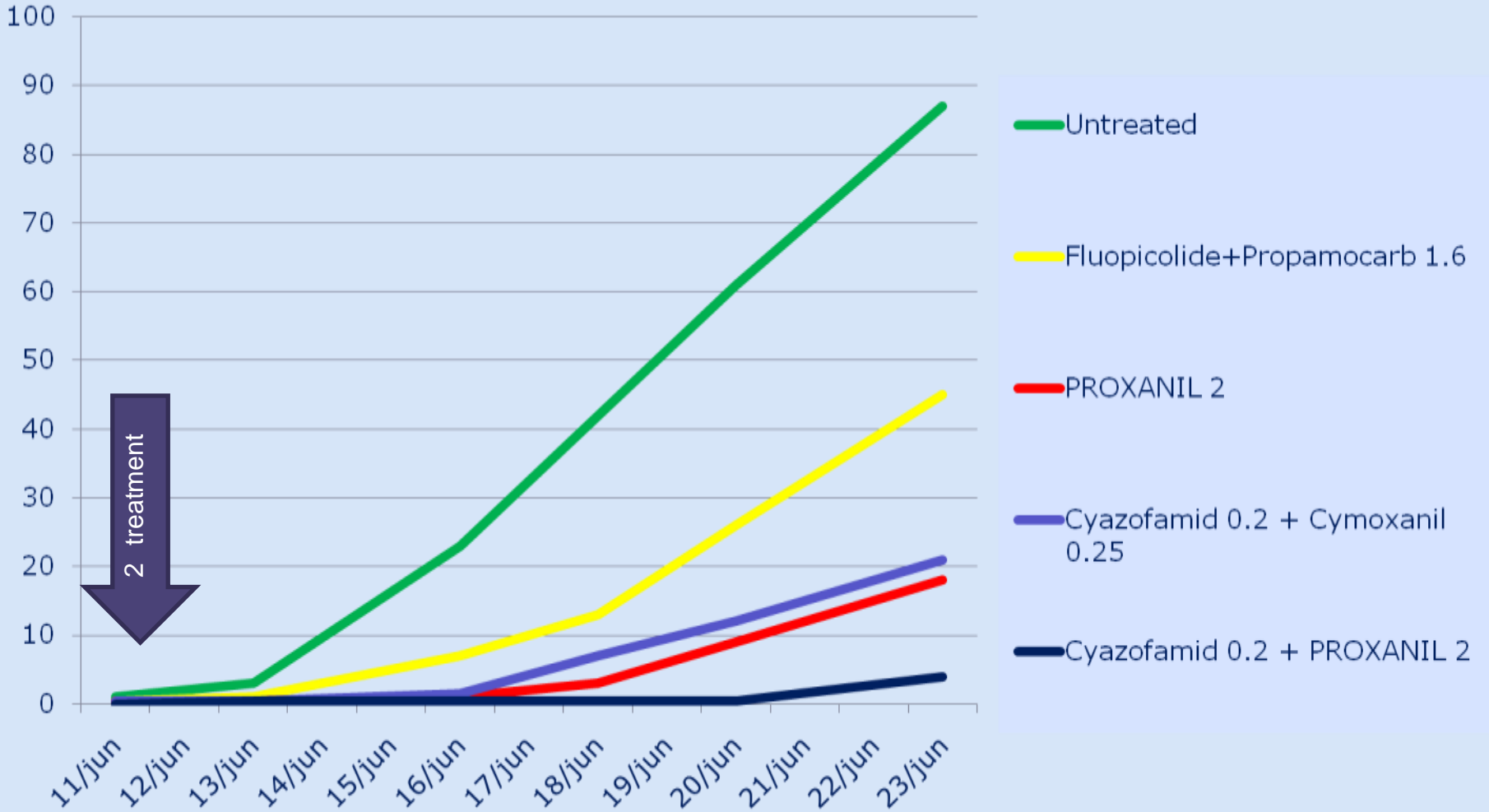


Curative Effect 2008 Field Trial

- Target: to see the effect of two applications Proxanil and Proxanil combinations in extreme conditions (heavy infection pressure) in the beginning of the season (fast growing plants)
- Artificial infection over the objects: June 5
- First application: June 7 (no visual symptoms)
- Second application: June 11 (first visual symptoms)
- Shirlan 0.4 l for the following treatments

| Object | Treatment | Dose |
|--------|-------------------------------|--------------------|
| 1 | Untreated | |
| 2 | Proxanil | 2 |
| 3 | Cyazofamid Proxanil | 0.2 + 0.15 2 |
| 4 | Cyazofamid Cymoxanil (45%) | 0.2 + 0.15 0.25 |
| 5 | Fluopicolide+Propamocarb | 1.6 |

% Infected foliage



Cyazofamid + Cymoxanil



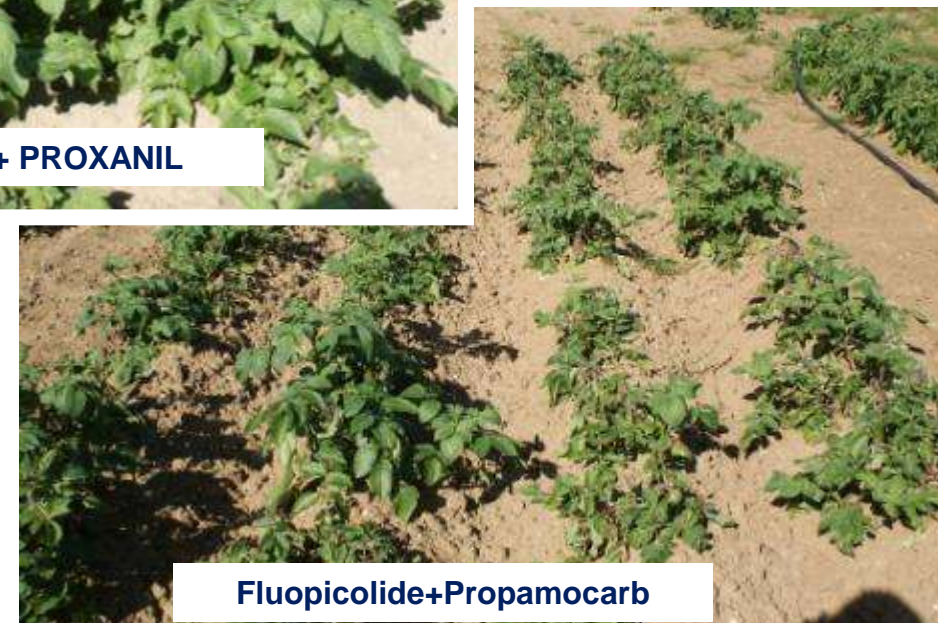
PROXANIL



Cyazofamid + PROXANIL



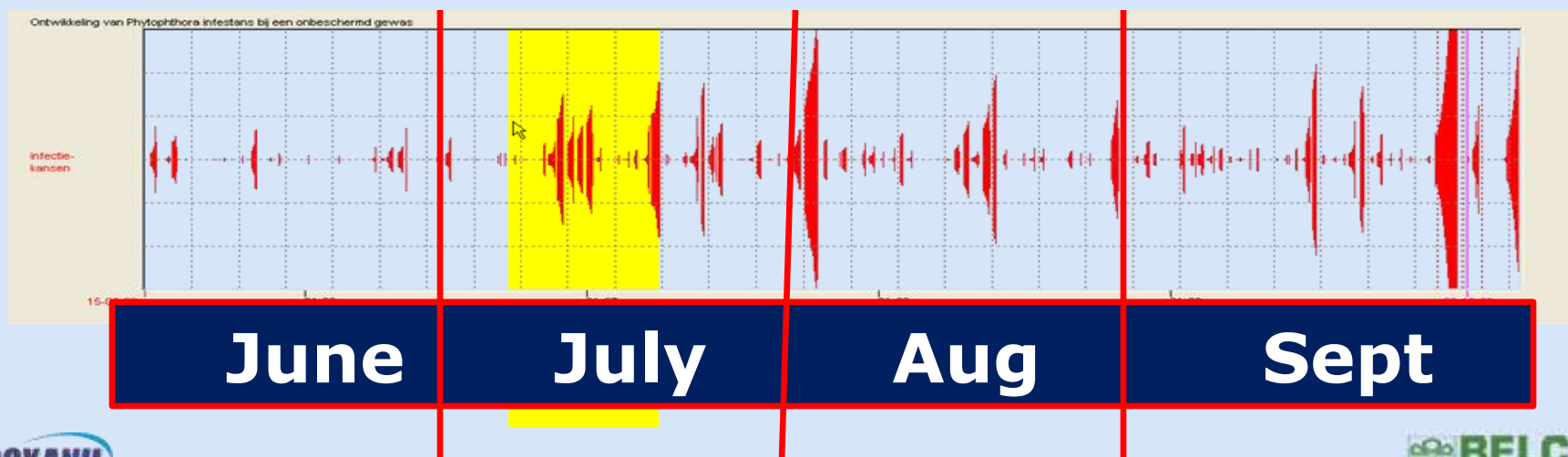
Untreated



Fluopicolide+Propamocarb

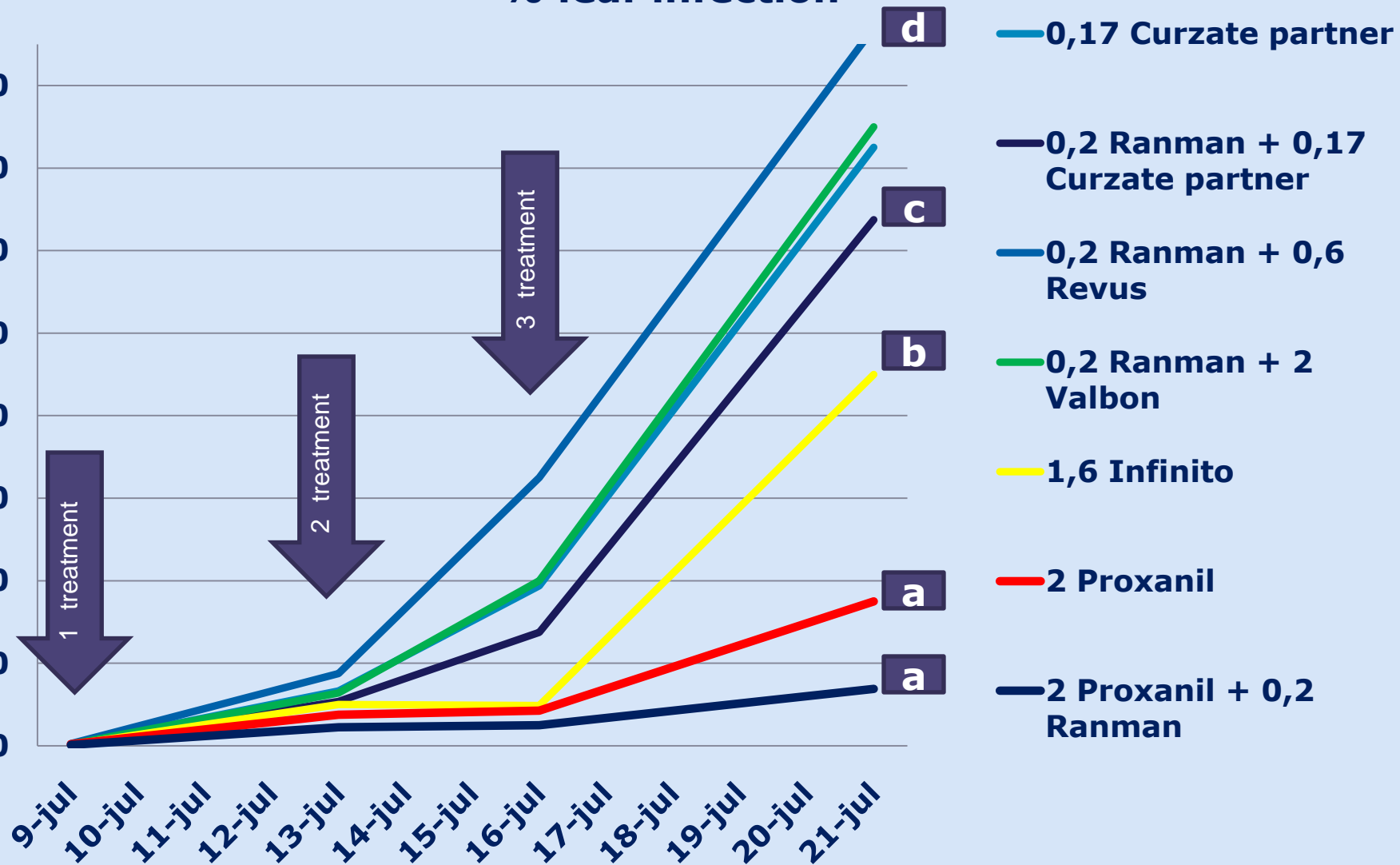
PPO Lelystad Curatieve Effect 2009 Field Trial

- First treatments with Shirlan at low doses (0.3).
- Inoculation infection rows.
- Treatments: 3 treatments with an shorter interval at moment of high pressure from infection rows.
- Further treatments with Shirlan.
- Infection pressure in Lelystad 2009



Phytophthora trial PPO Lelystad

% leaf infection



Cyazofamid always with adjuvant 0.15 l/ha

Antisporulating effect

Latent Period



Infection

3 to 5 days

Lesion Area



First sporangiophores

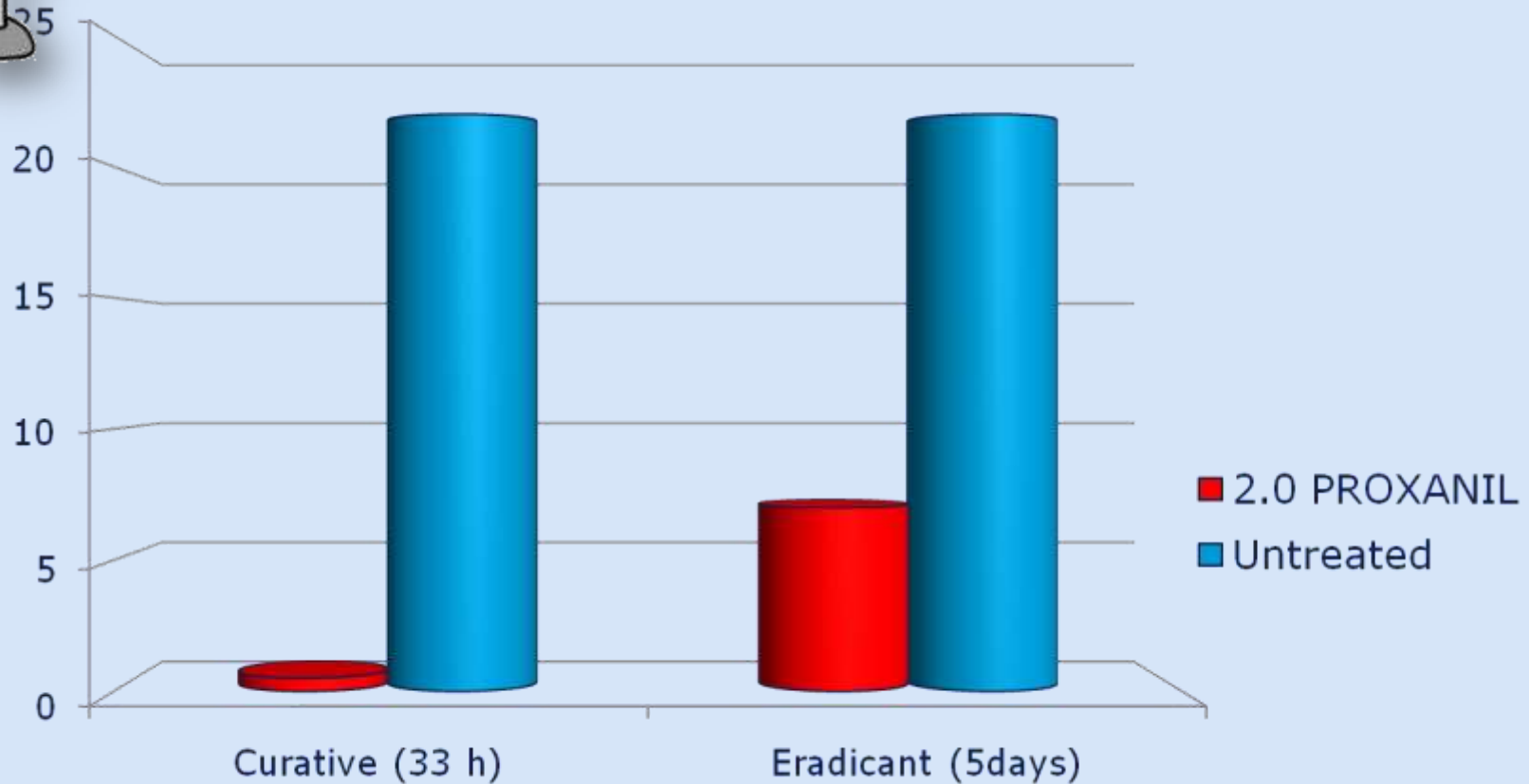


1 to 3 days

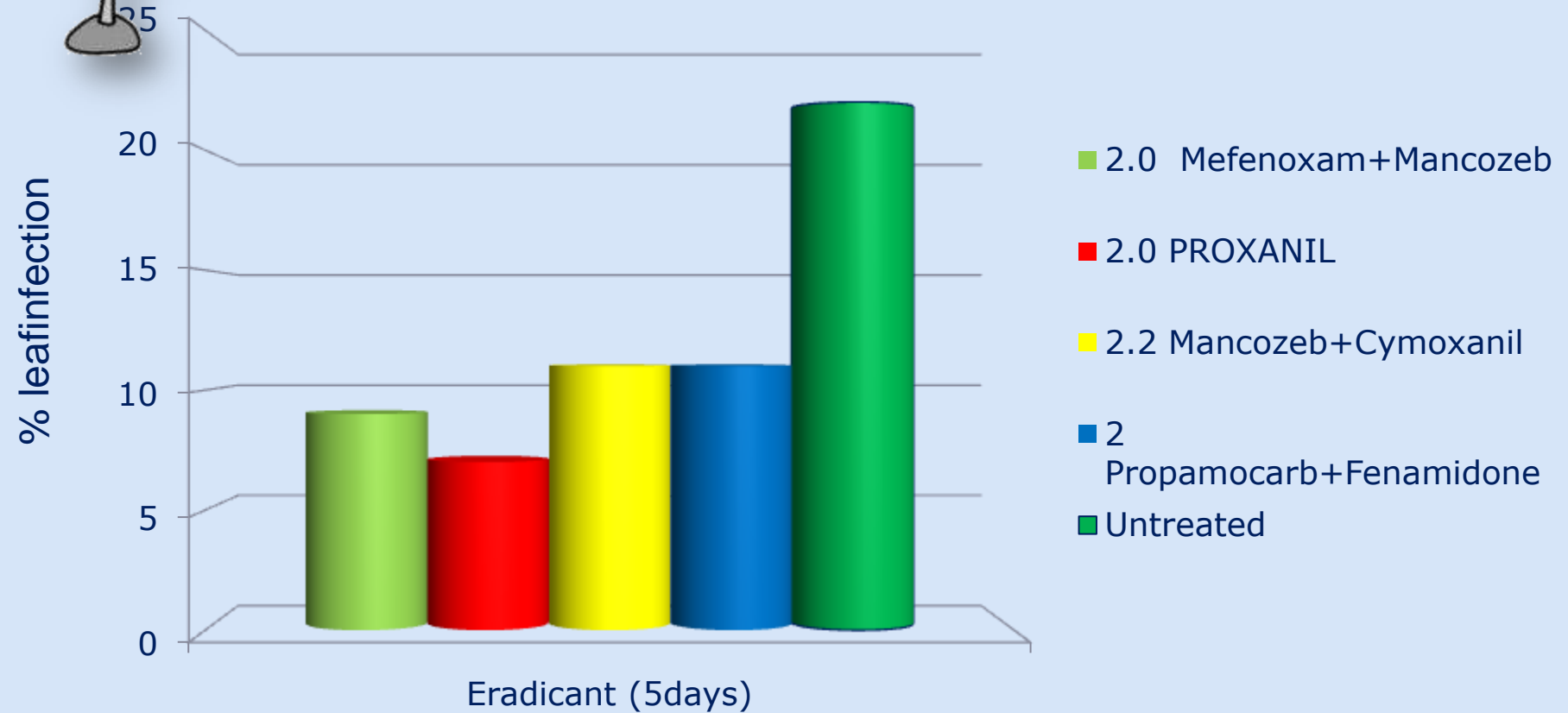
Developed late blight



Curative – eradicant: a big difference



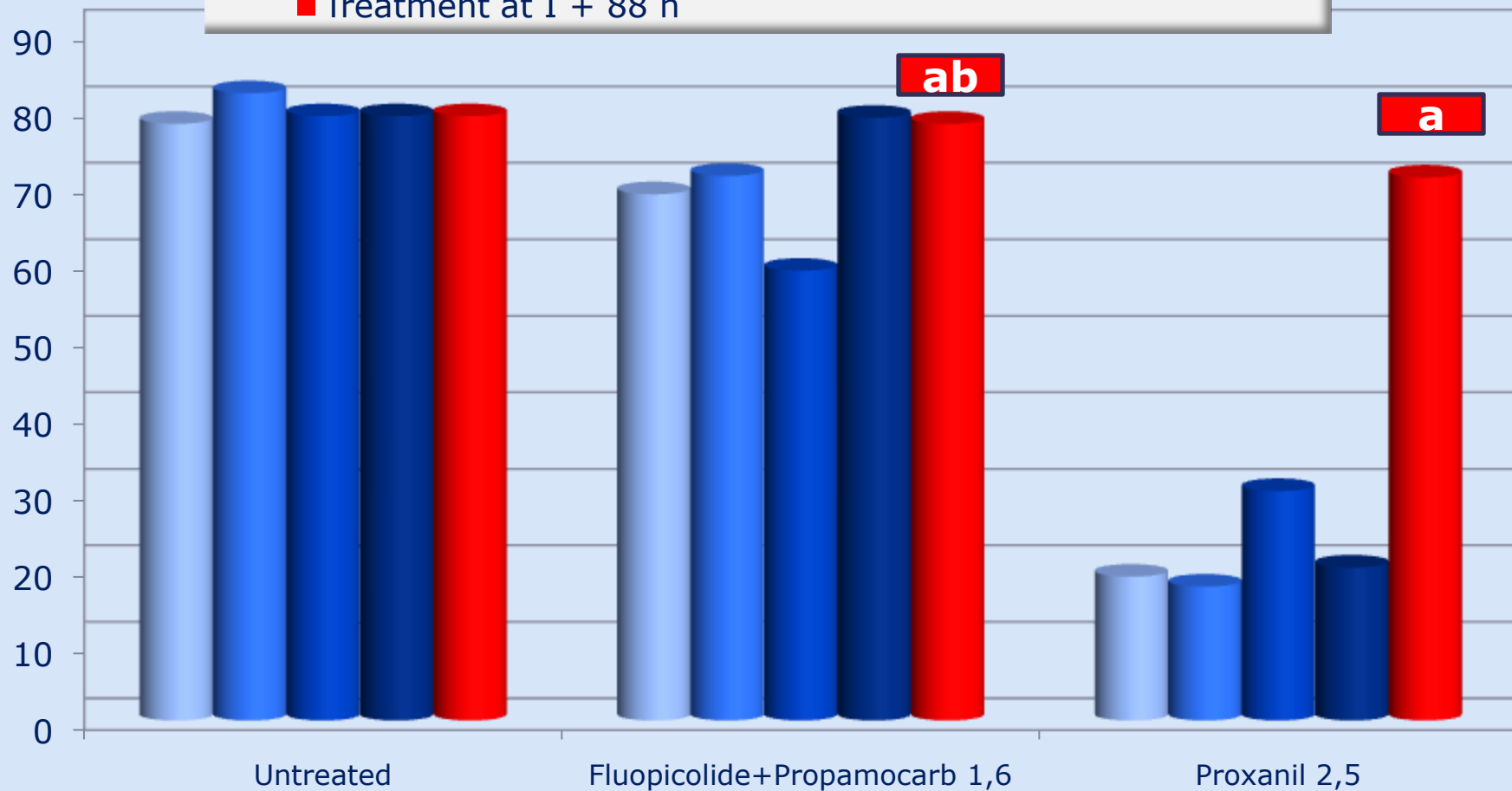
Curative – eradicant: a big difference





Curative – eradicant: a big difference

- Treatment at I+12h
- Treatment at I+18h
- Treatment at I+36h
- Treatment at I+48h
- Treatment at I + 88 h



Conclusions

Curative activity:

- In comparison with cymoxanil alone (a compound known to have good curativity), the curative activity of the formulation cymoxanil + propamocarb is stronger, even though the limited curativity of propamocarb. This shows a synergy of the formulation propamocarb and cymoxanil. Proxanil has the best curative activity in the presented trials.

Eradicant activity:

- None of the tested products has satisfying eradicant activity. Proxanil shows the best stop effect but it is not strong enough to stop the visual blight spots immediately. It demonstrates the importance of a good preventive product in the schedule to stop visual late blight.

Proposal EU rating

| Product ¹ | Effectiveness | | | | Mode of action | | | Rain | Mobility in the plant |
|---|---------------|------------|-------------|--------------|----------------|----------|----------------|------|---------------------------------|
| | Leaf blight | New growth | Stem blight | Tuber blight | Protectant | Curative | Anti sporulant | | |
| <i>Propamocarb HCL + cymoxanil</i> | - | ? | ++ | ++ | ++ | ++(+) | ++(+) | +++ | Systemic + translaminair |

- **Preventive leaf blight:** no information in the EU trials = -
- **New growth:** no specific data = ?
- **Stem blight:** looking to the active ingredients propamocarb and cymoxanil = ++
- **Tuber blight:** comparable as other propamocarb containing products = ++
- **Protectant:** ++
- **Curative:** the curativity is at least as good as the systemically products and clearly better than cymoxanil/mancozeb = ++(+)
- **Anti sporulant:** there is an good anti sporulating (eradicant) effect = ++(+)
- **Rainfastness:** as it is a systemic and translaminair product , the rain fastness = +++

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