

# Protection of new growth with cyazofamid

Johan Desnouck & Jos Testers

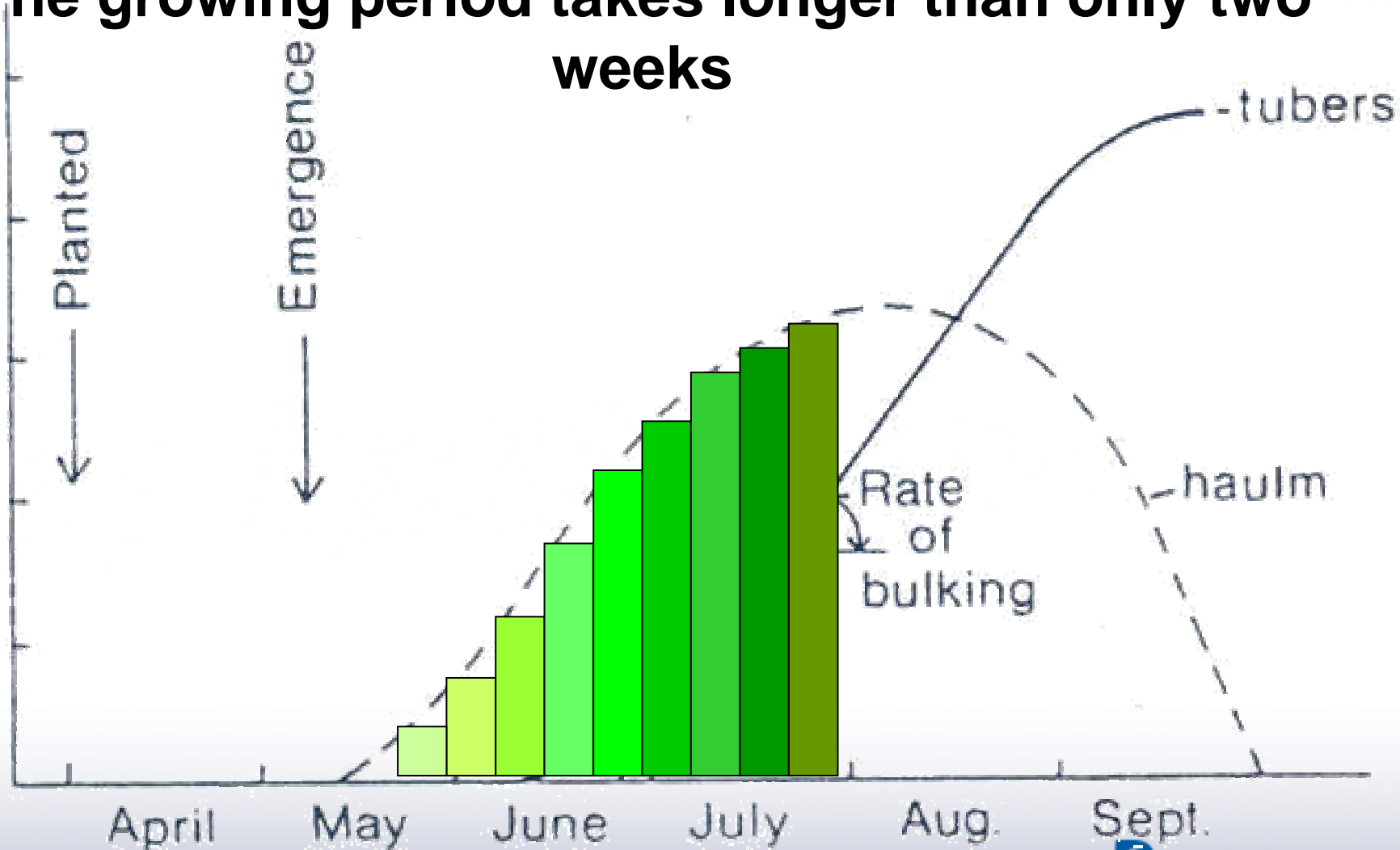




## Protection in growing phase

- Protection in the growing phase is one of the important challenges for the farmers.
  - Spraying on advise of the warning systems
  - Spraying with calendar fungicide programmes
    - use of fungicides with a systemic active ingredient, e.g. Fubol Gold, Epok, Merlin, Consento,...
    - use of non-systemic fungicides on a short interval

# The growing period takes longer than only two weeks



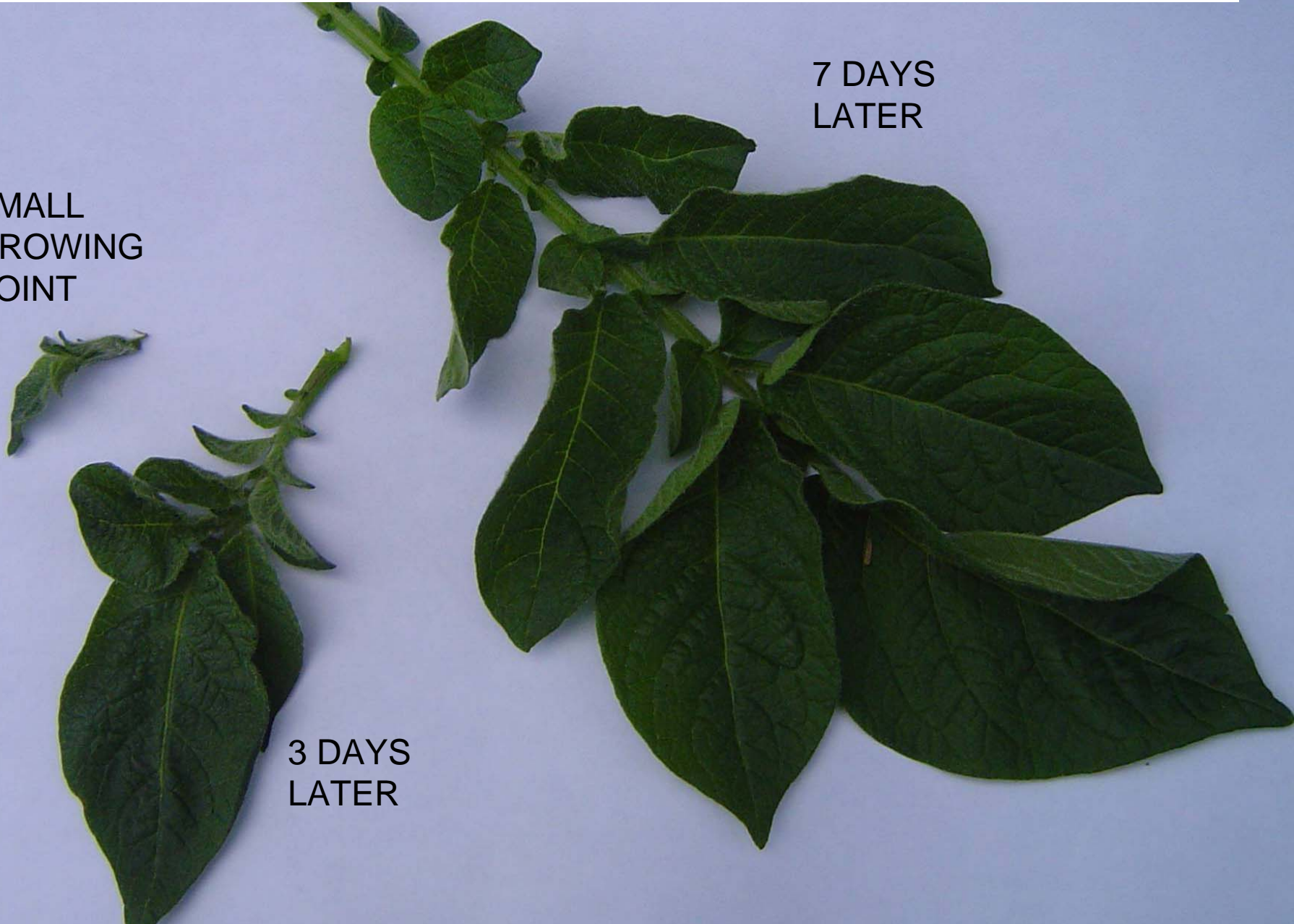


# A leaf is growing,...

SMALL  
GROWING  
POINT

7 DAYS  
LATER

3 DAYS  
LATER



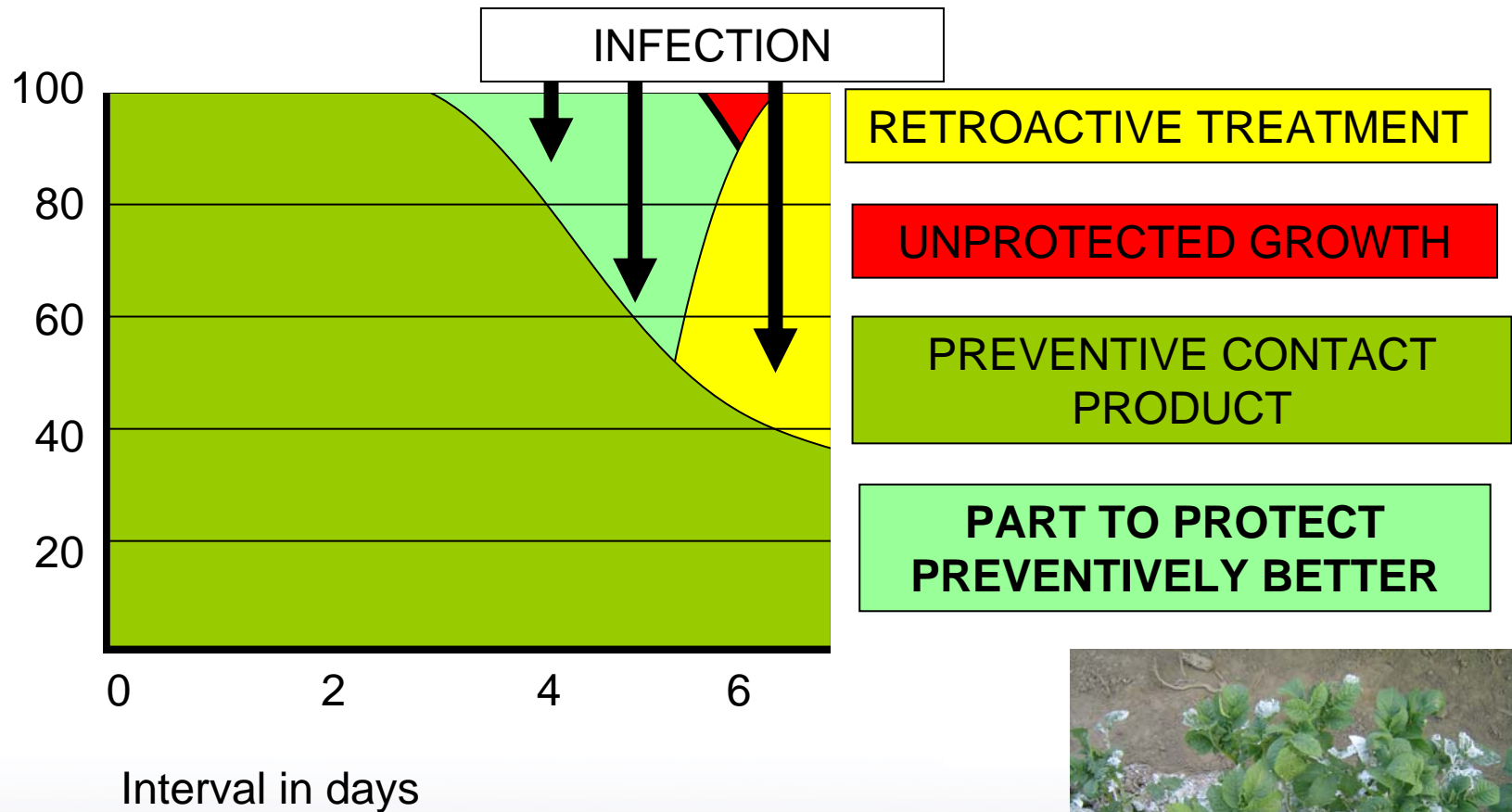


# Development of leaves in one week

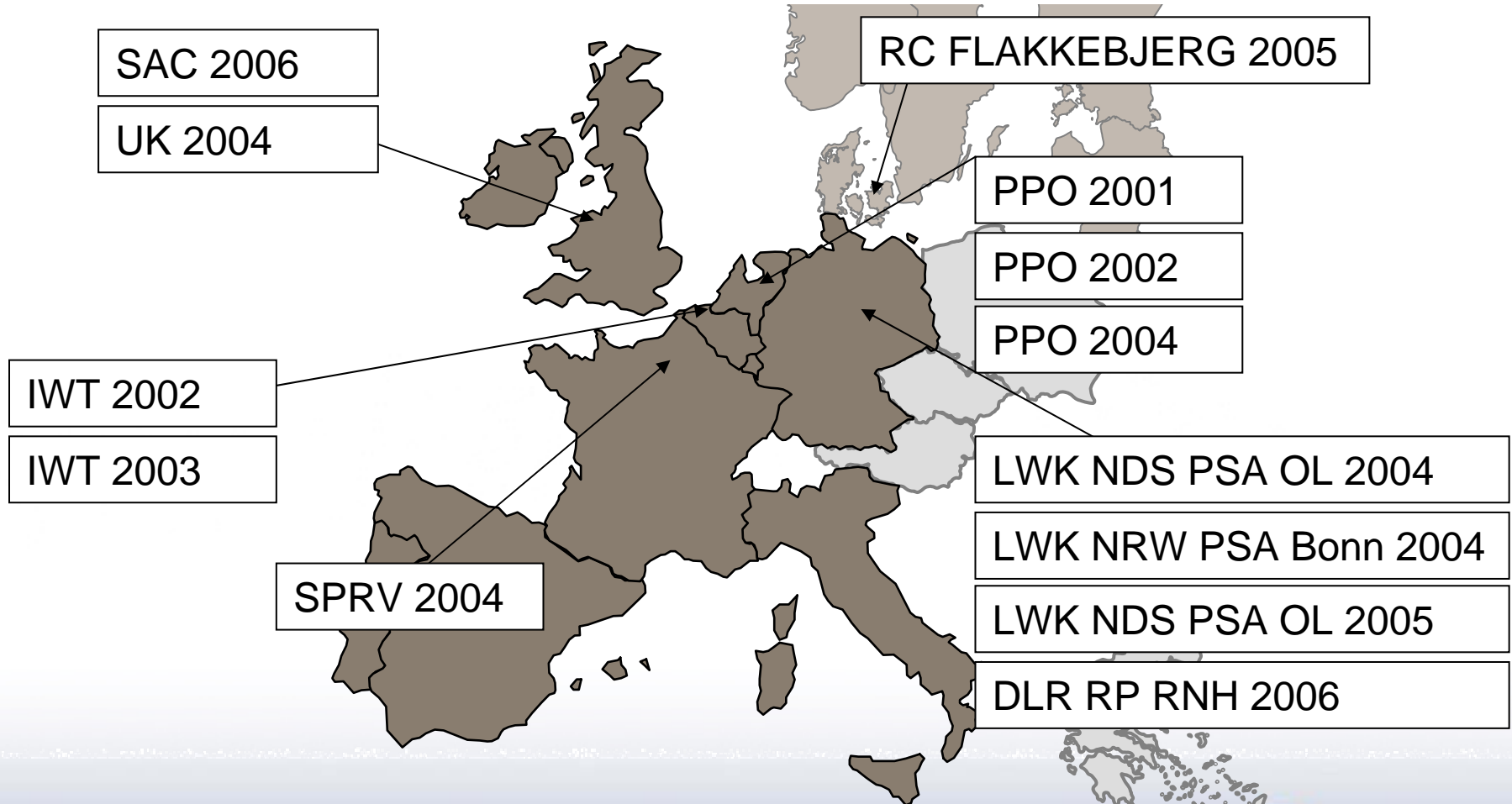




# Protection of the new leaves: strategies



# Research 'new growth protection' with Ranman



## Used dose rates

• Ranman	Cyazofamid + Adjuvant	0.2 + 0.15 l
• Epok	Mefenoxam + Fluazinam	0.5 l
• Shirlan	Fluazinam	0.4 l (UK 0.3 l)
• Ridomil Gold	Mefenoxam + Mancozeb	2.5 kg
• Curzate	Cymoxanil + Mancozeb	2.5 kg
• Tattoo C	Propamocarb + Chlorothalonil	2.0 – 2.5 l
• Dithane DG	Mancozeb	2.0 kg
• Sereno	Fenamidone + Mancozeb	1.5 kg
• Unikat Pro	Zoxamide + Mancozeb	1.8 kg
• Tanos	Famoxate + Cymoxanil	0.6 - 0.7 kg
• Valbon	Benthiavalicarb + Mancozeb	1.6 kg
• Acrobat (Invader)	Dimethomorph + Mancozeb	2.0 kg



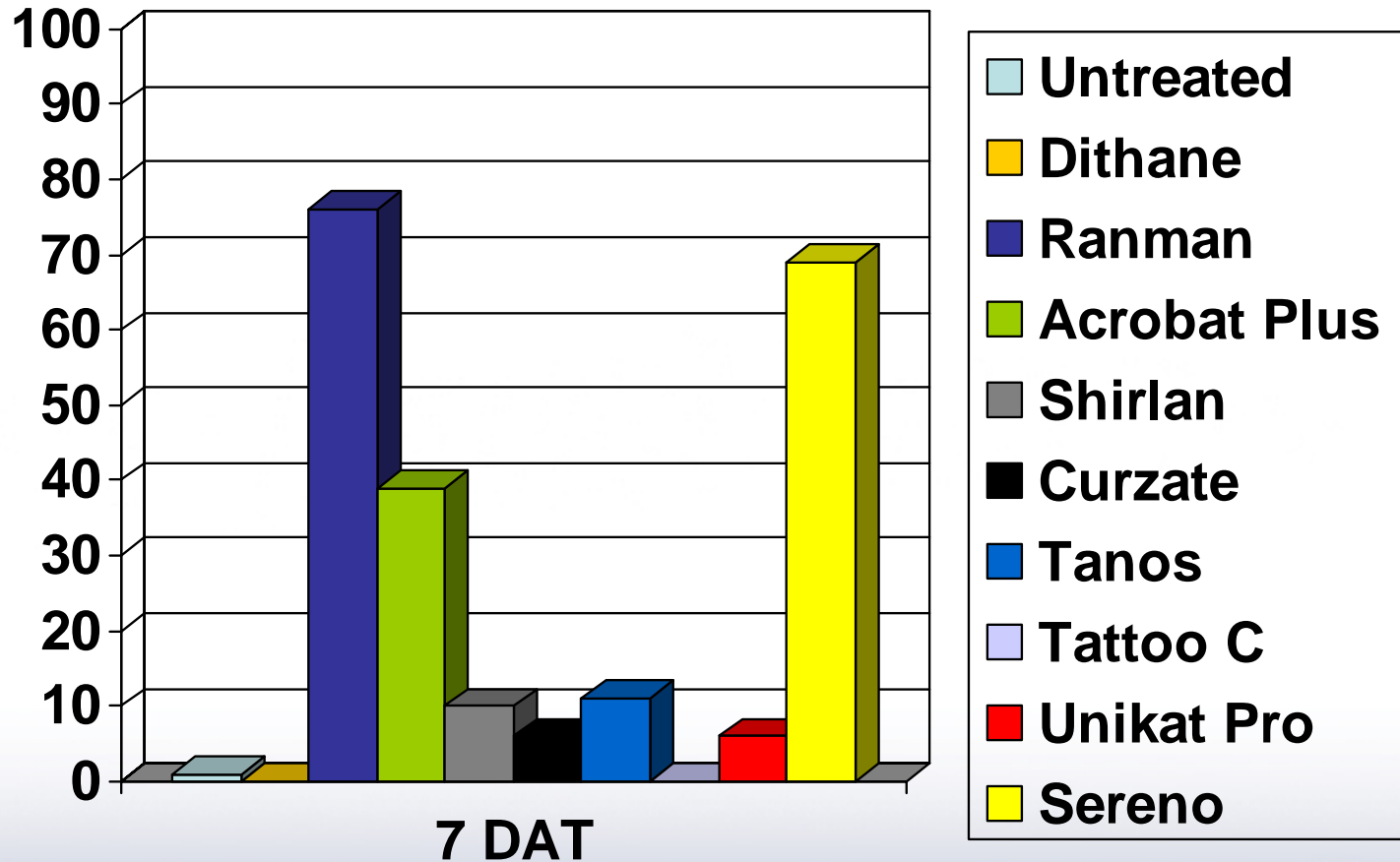


# **IWT trial 2002**

G. Haesaert, B. Heremans Belgium

# IWT TRIAL 2002

% PROTECTED NEW GROWTH





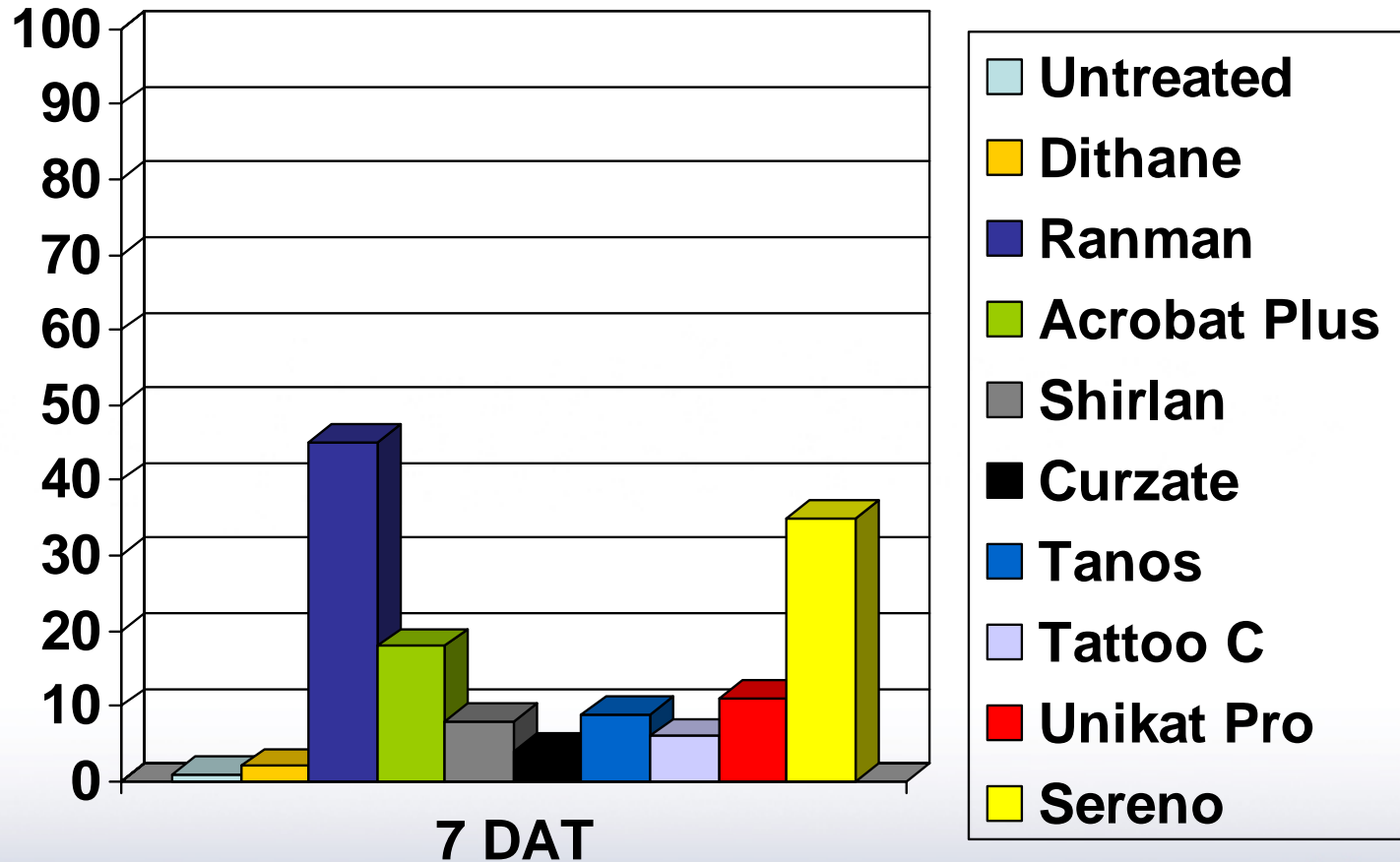


# **IWT trial 2003**

G. Haesaert, B. Heremans Belgium

# IWT TRIAL 2003

% PROTECTED NEW GROWTH



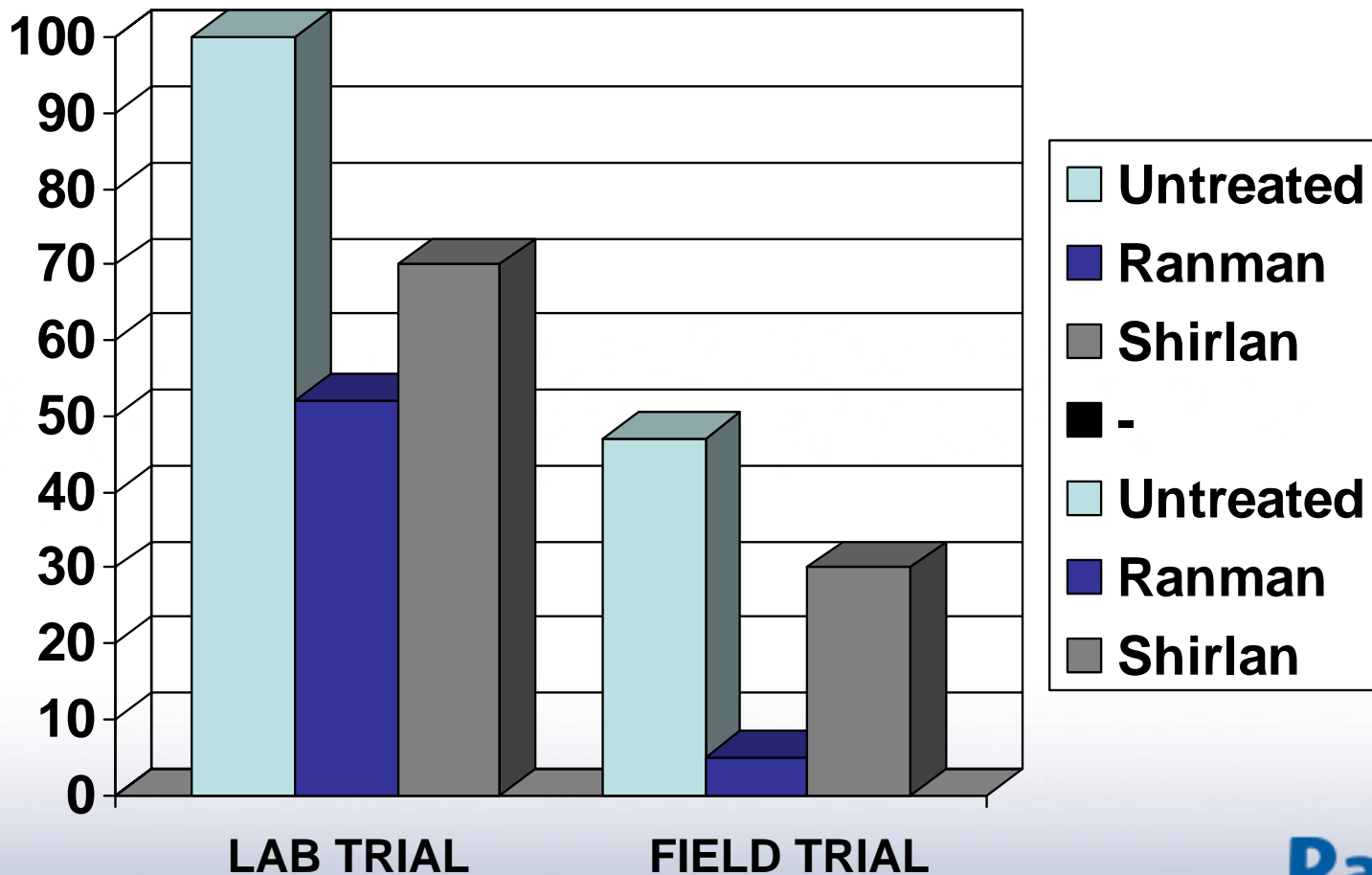




**PPO trial 2004**

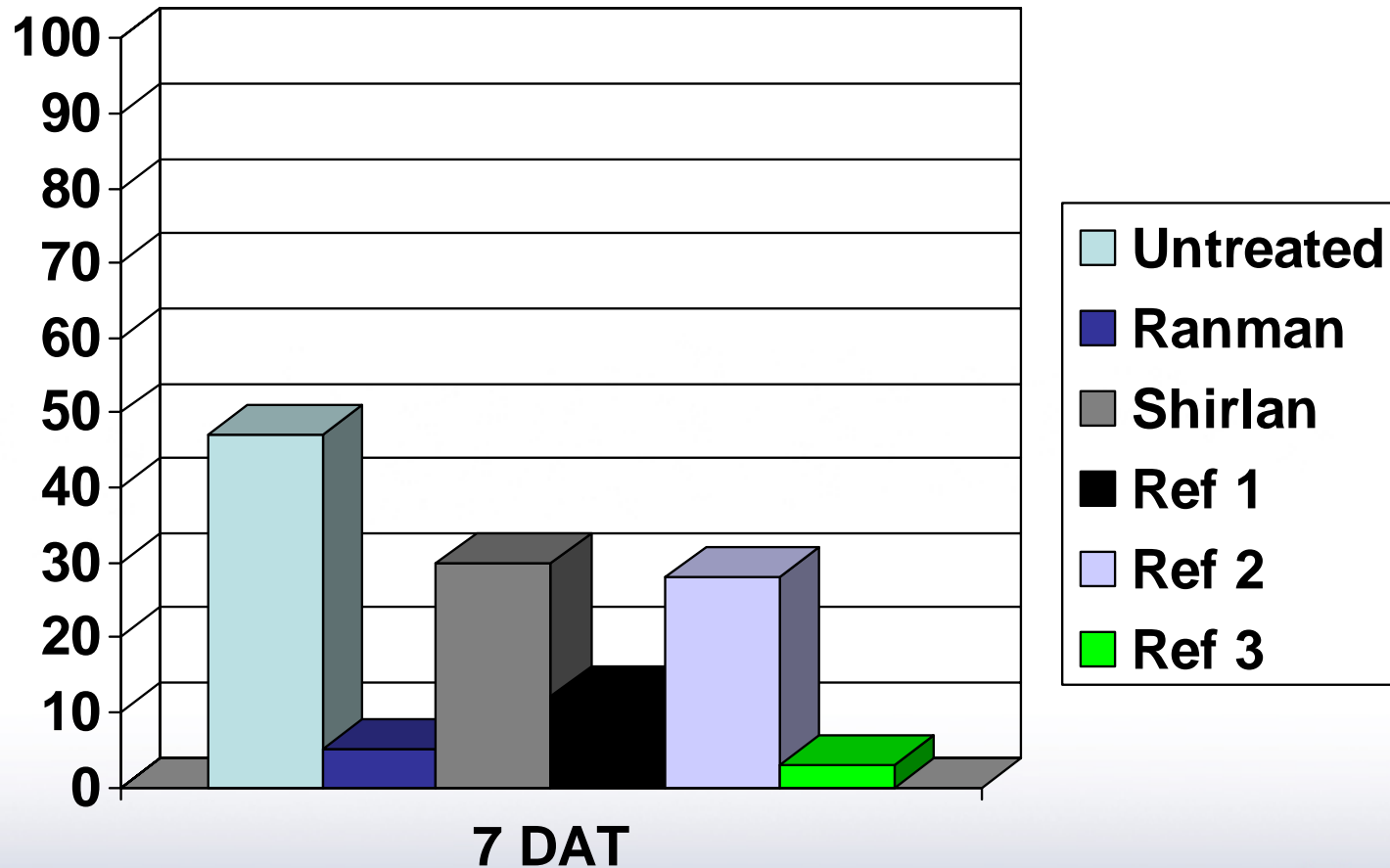
# PPO Lelystad, 2004

% INFECTED NEW GROWTH





# Growing Point leaflets inoculation in the field PPO Lelystad, 2004



% INFECTED NEW GROWTH



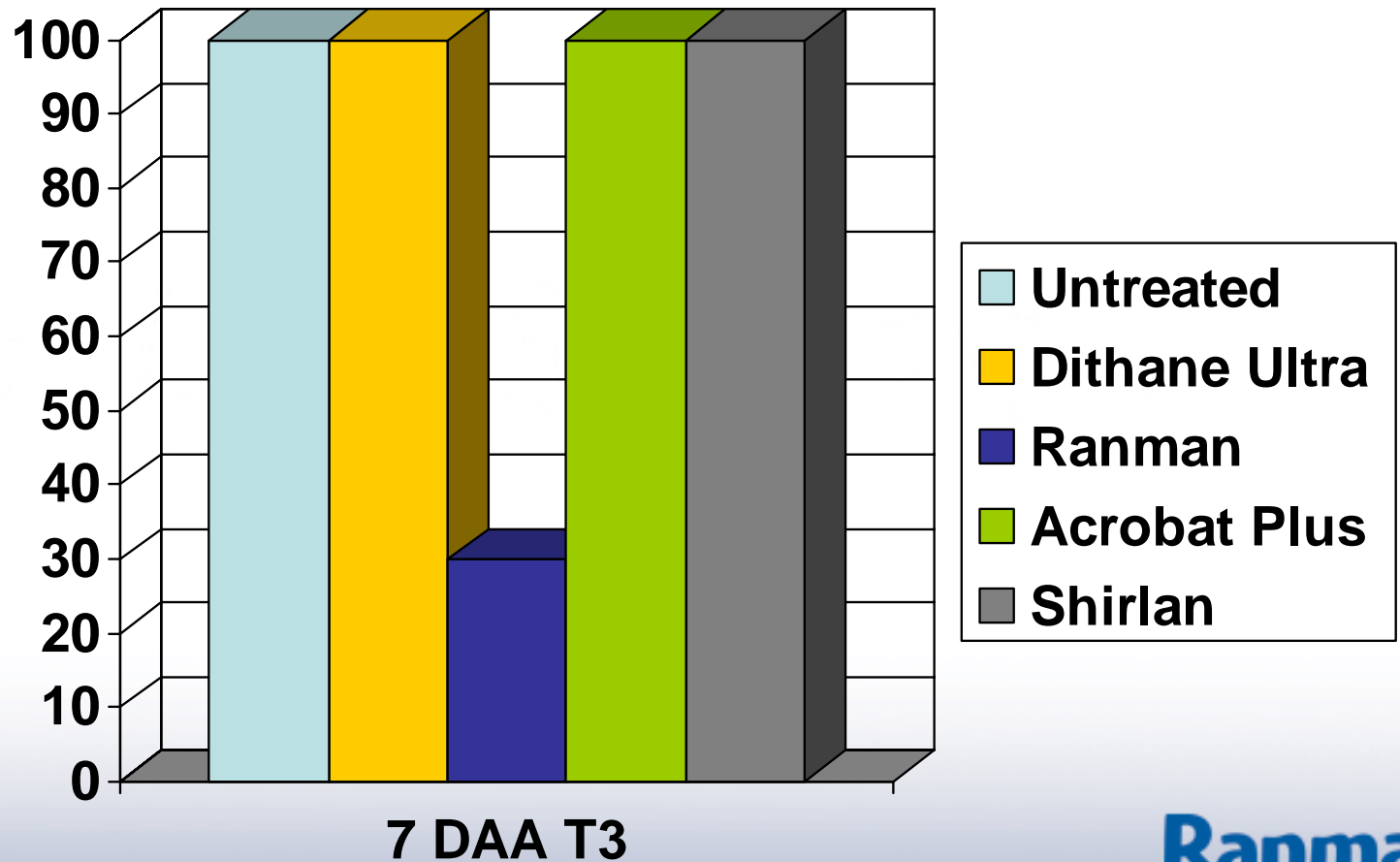
# PSA trial 2004

Oldenburg 2004

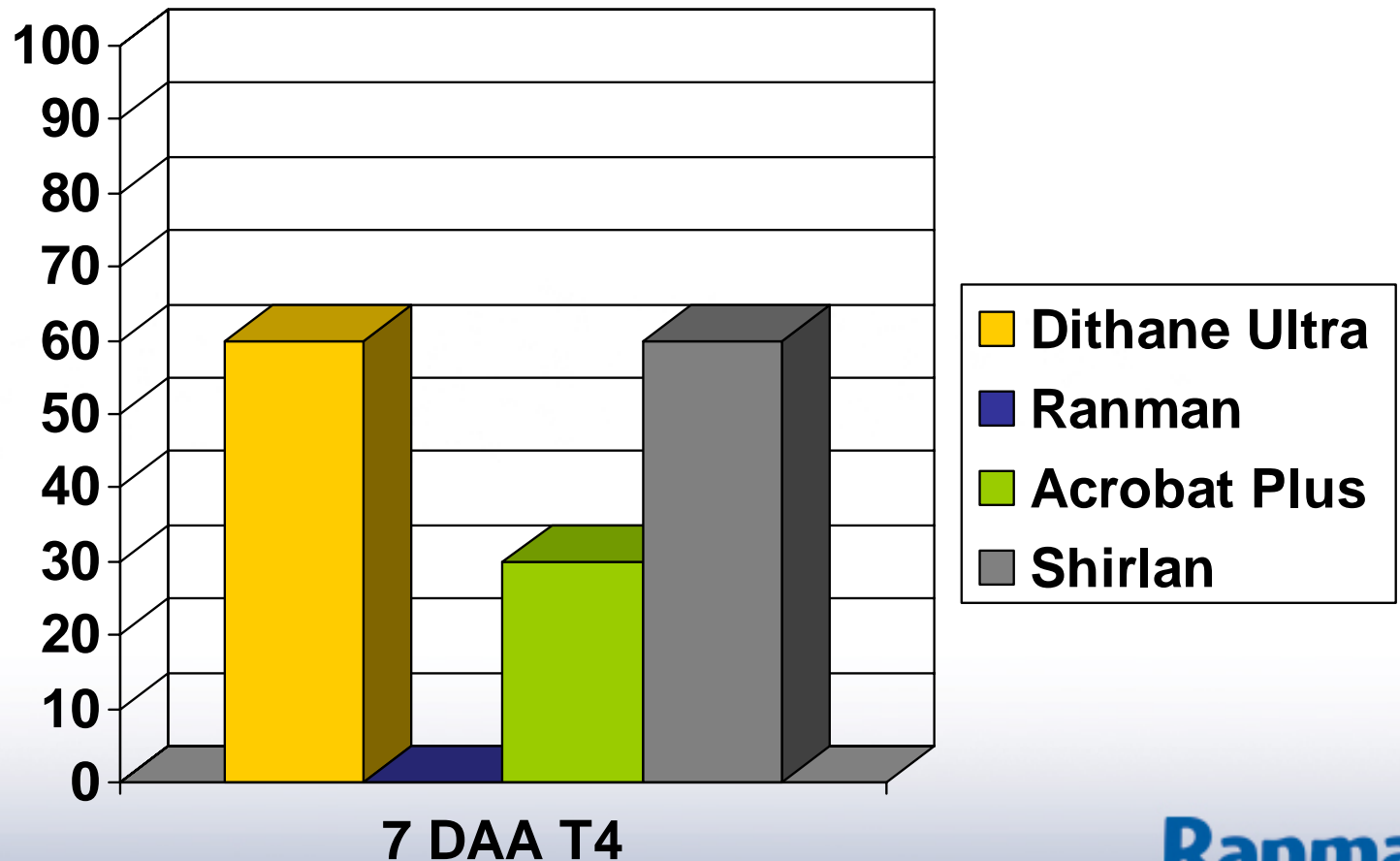
Dr. J. Kakau



## % infestation after one application

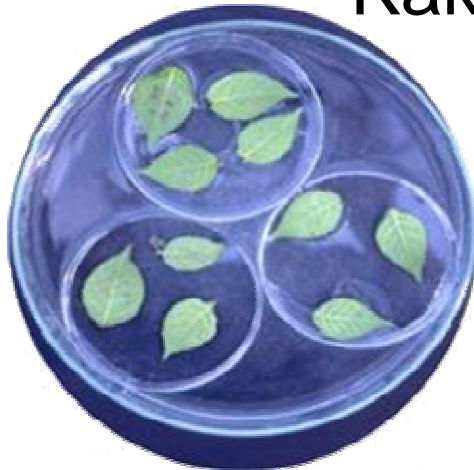


## % infestation after two applications





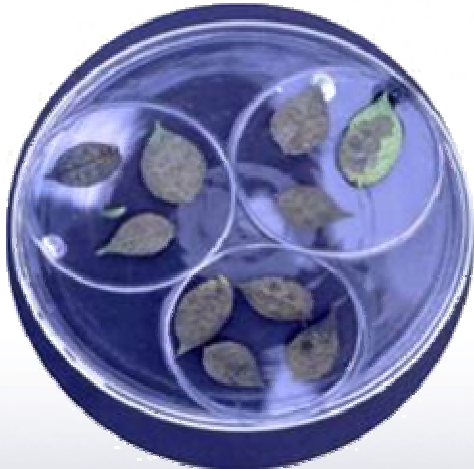
# Protection of new growth, PSA Oldenburg, Dr. J. Kakau 2004



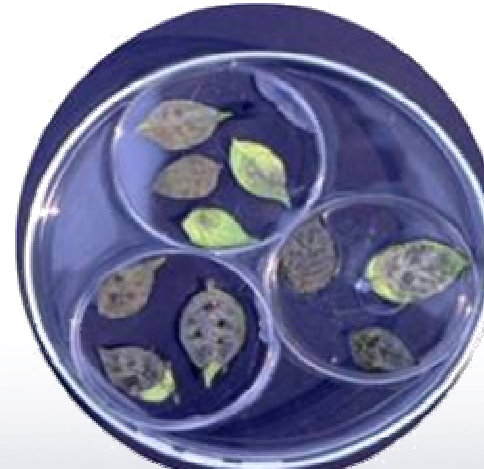
Ranman



Shirlan



Acrobat



Dithane

Young leaflets after artificial infection 10 DAA



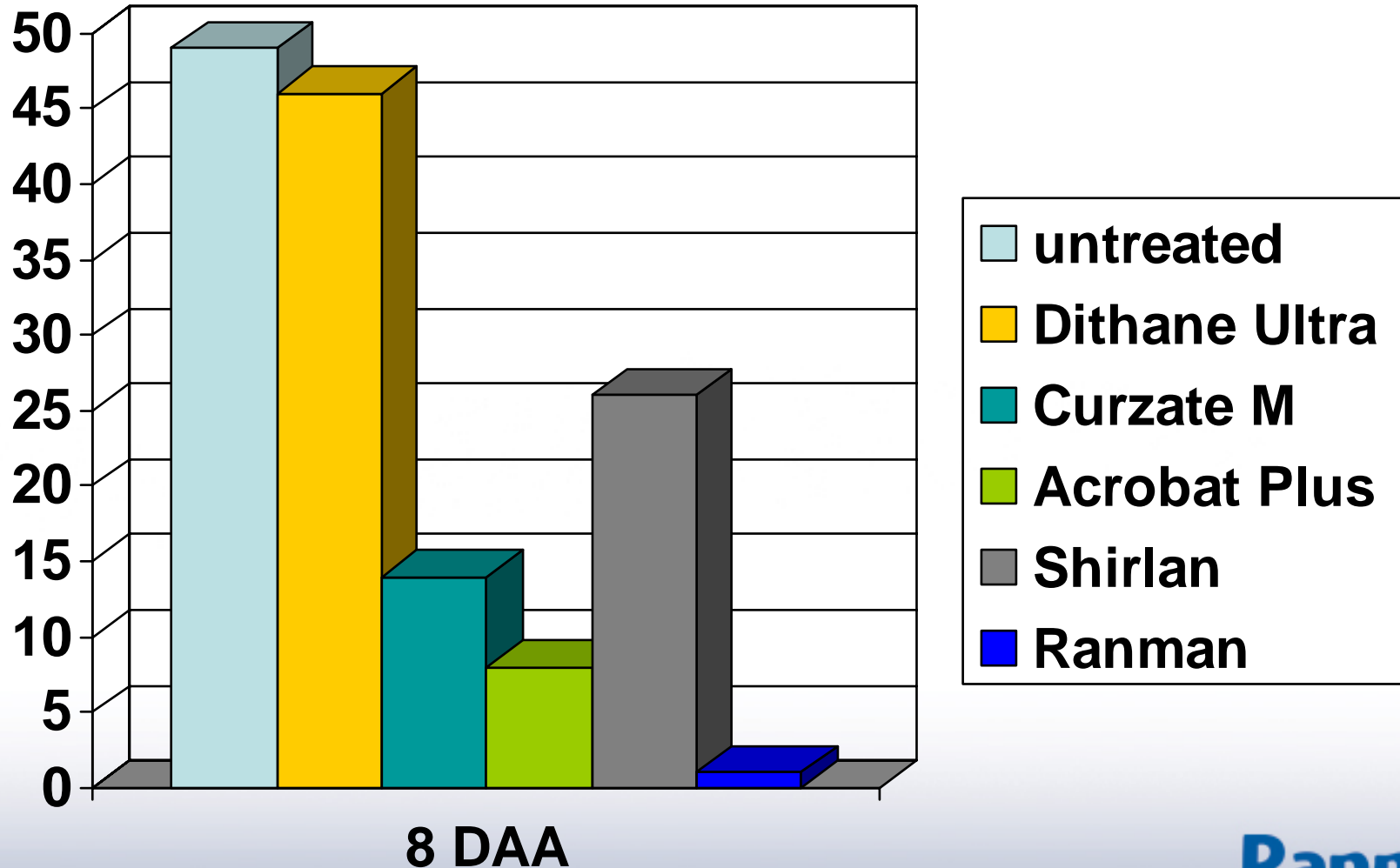
# PSA trial 2005

Oldenburg 2005

Dr. J. Kakau



# PSA Oldenburg, Dr. Kakau





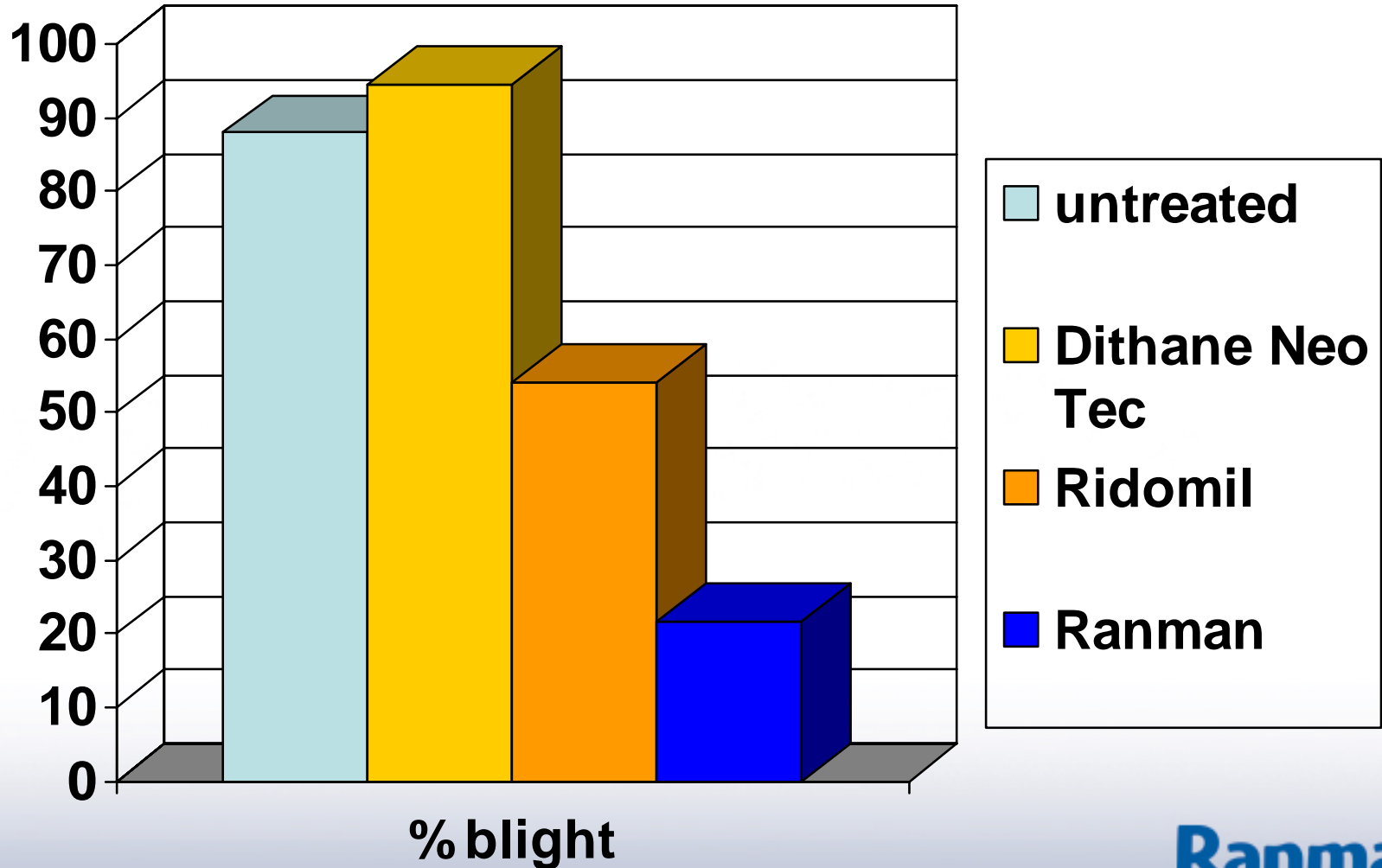
# **DLR trial 2006**

Dr. Albert, Bad Kreuznach (D)



# Protection of New Growth

Dr. Albert, Bad Kreuznach (D)



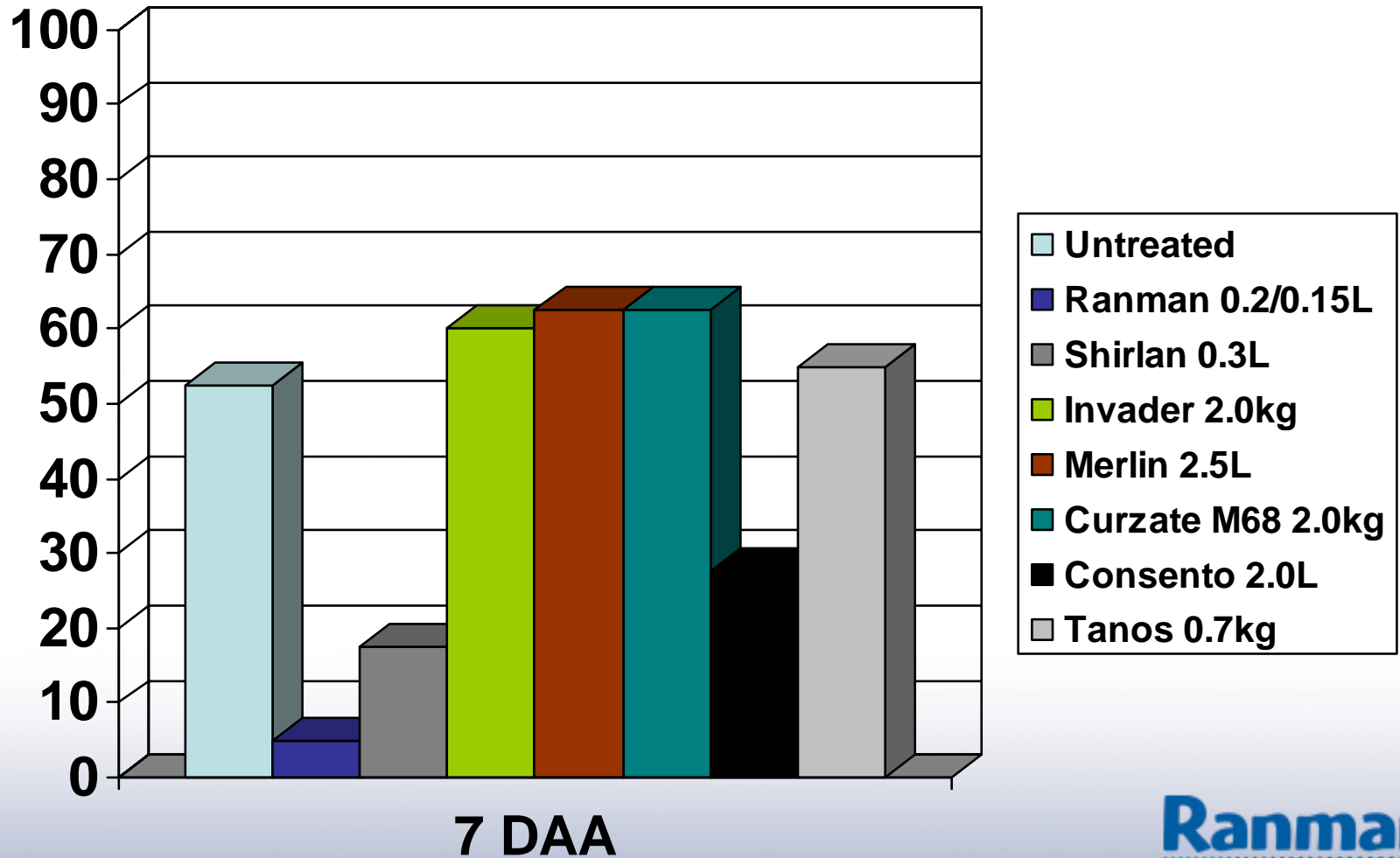


**UK trial 2004**





# surface leaf inoculation % of leaves infected

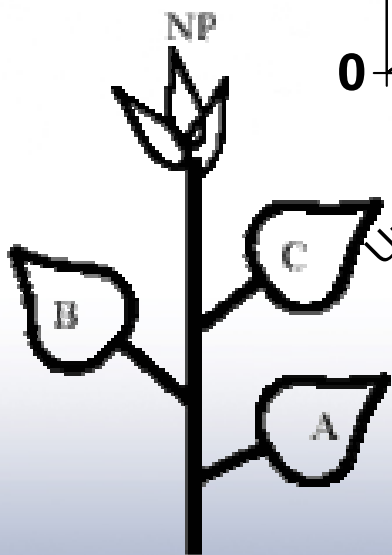
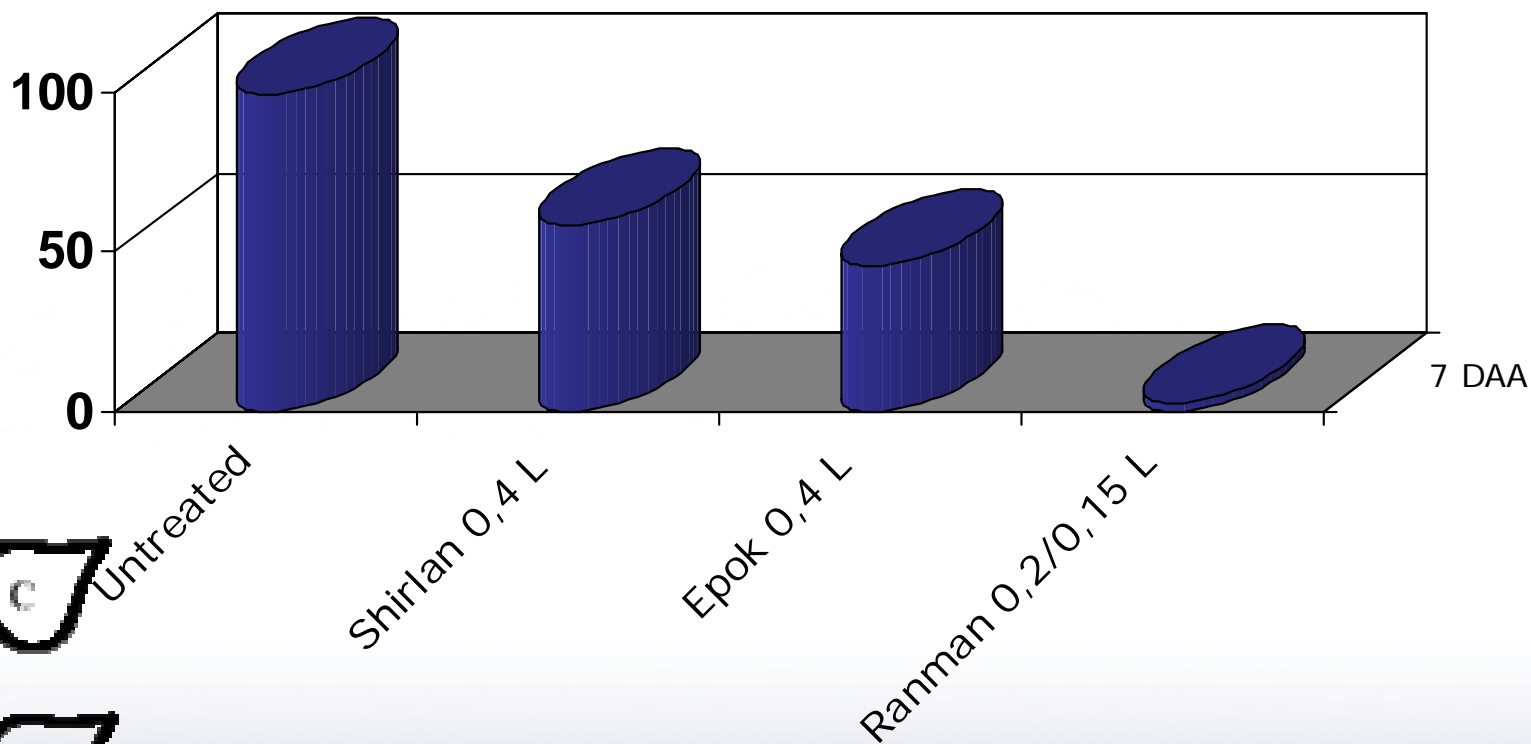




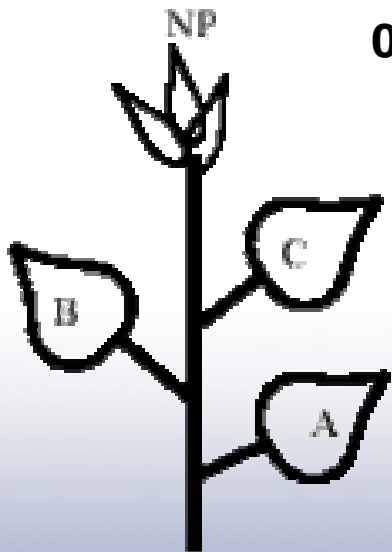
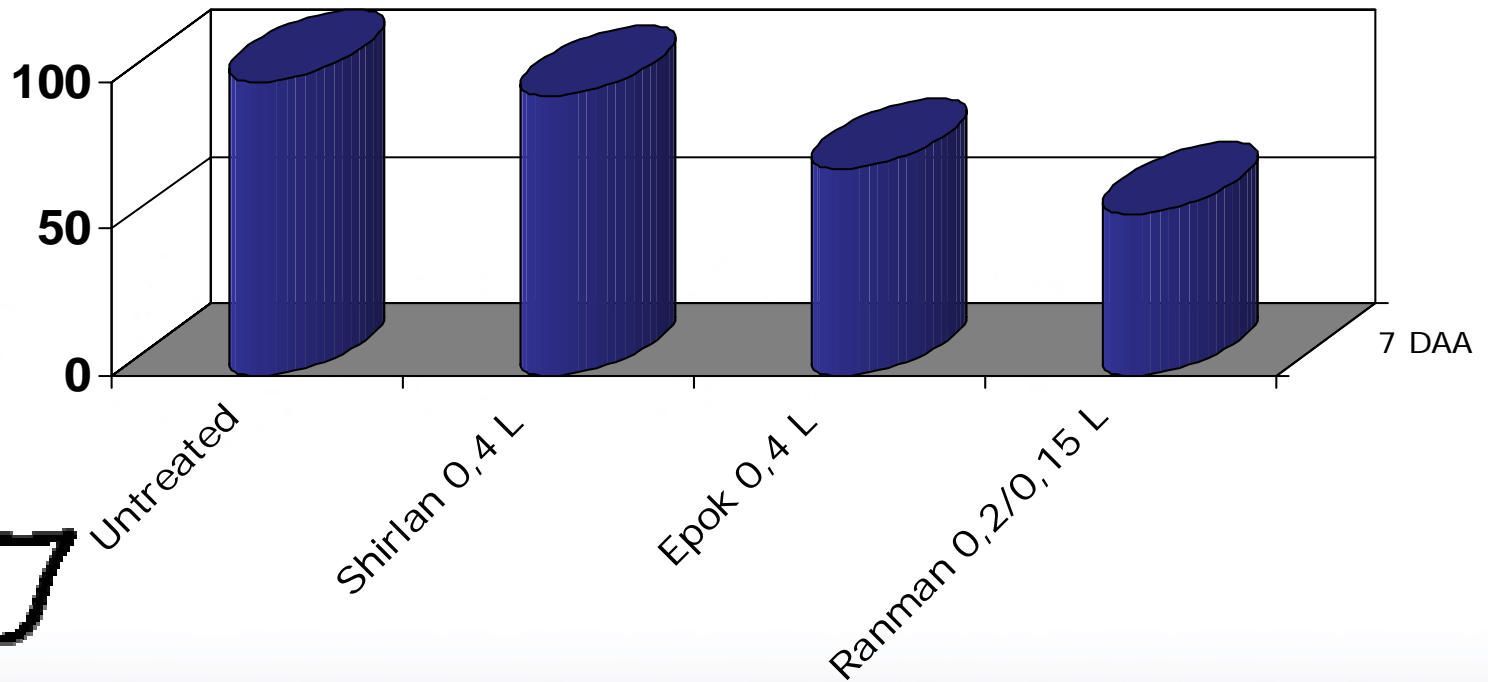
**SRPV trial 2004**



# surface leaflets (ABC) inoculation % area infected



# Growing Point leaflets (NP) inoculation % area infected



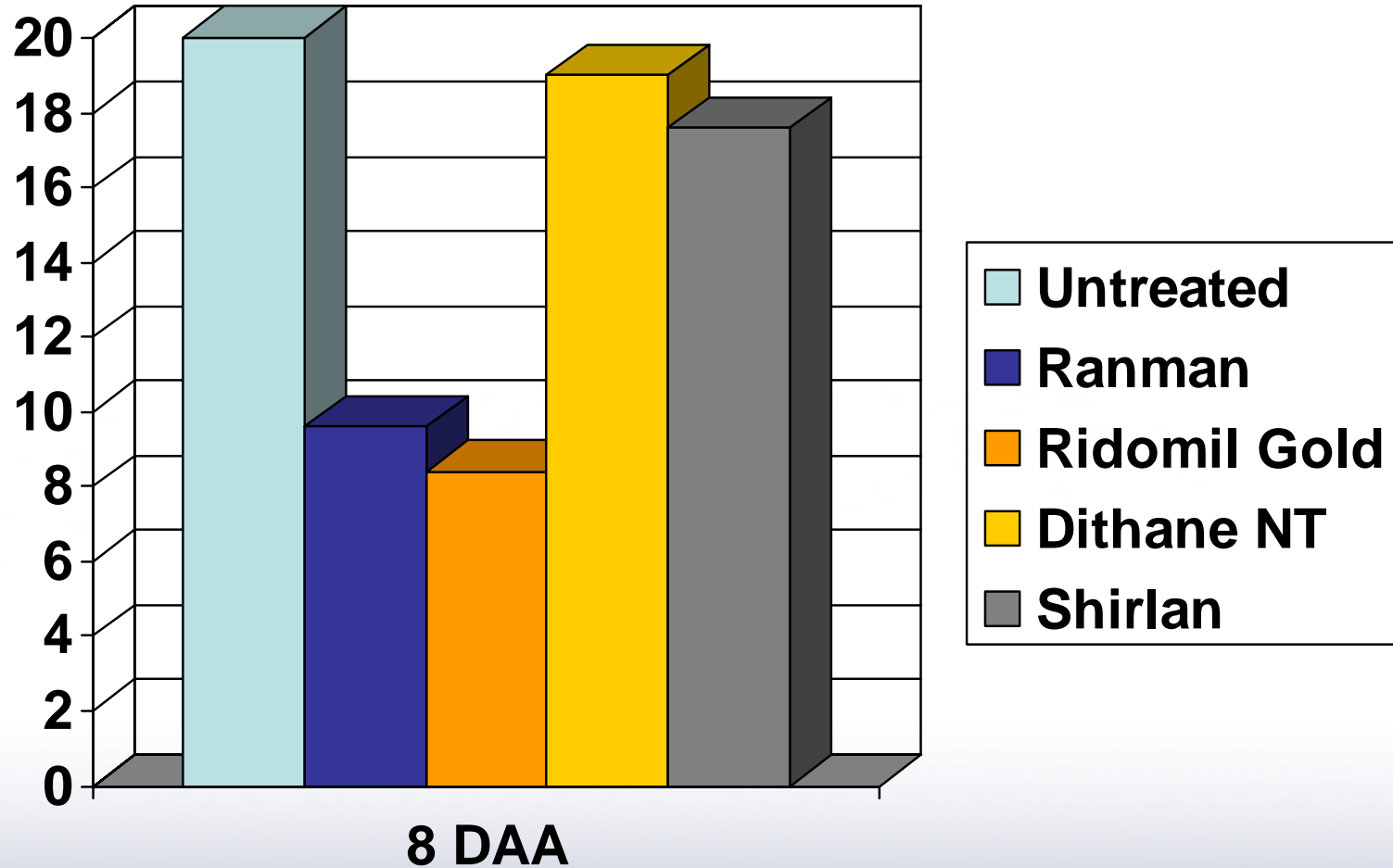




# DANMARK trial 2005

Bent Nielsen,  
Danish Institute of Agricultural Sciences, 2005

## Trial Danmark 2005







Untreated



Shirlan



Ridomil Gold



Ranman

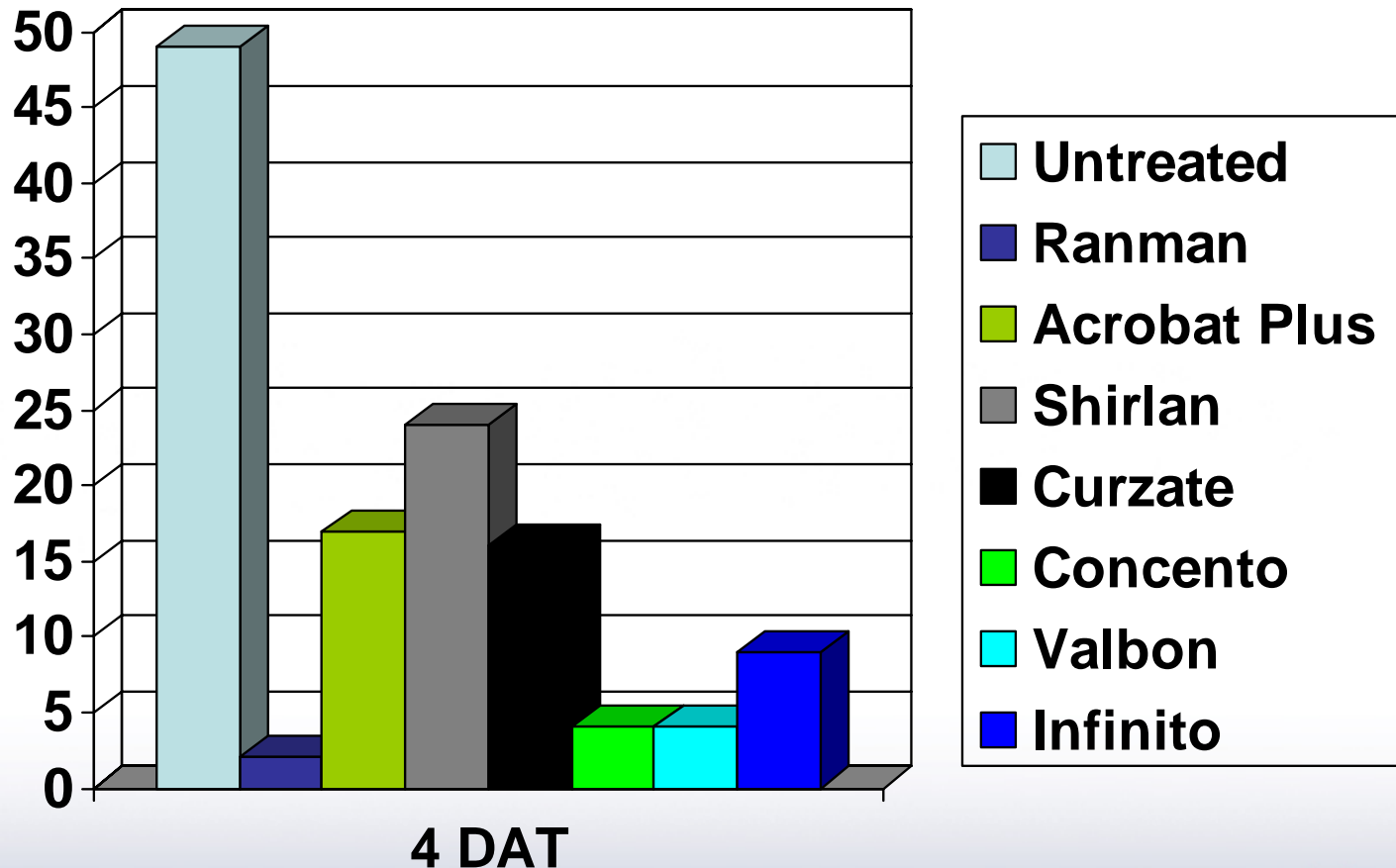




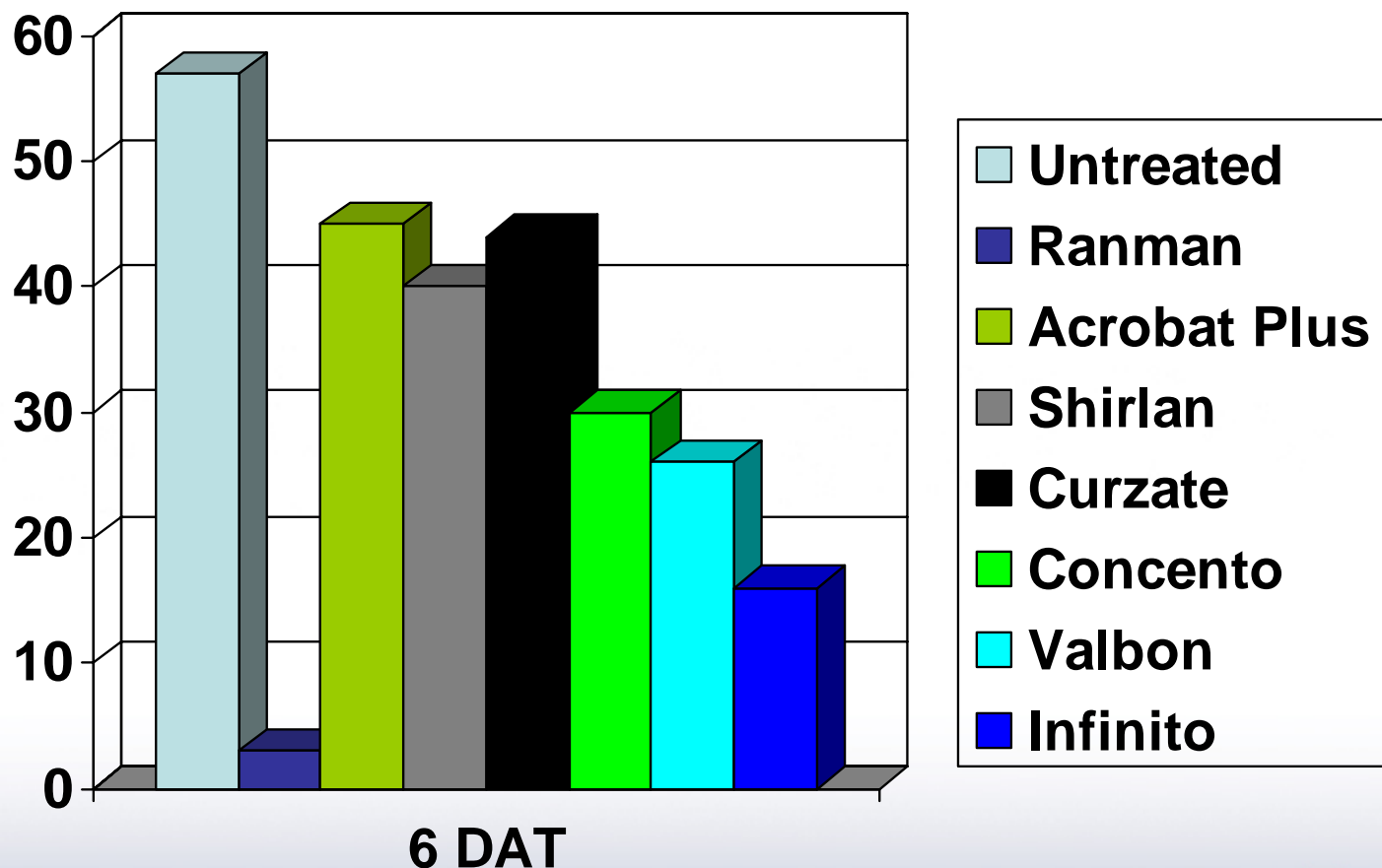
**SAC trial 2006**



# SAC: Infection in relation to fungicide and leaf surface - 4 dat

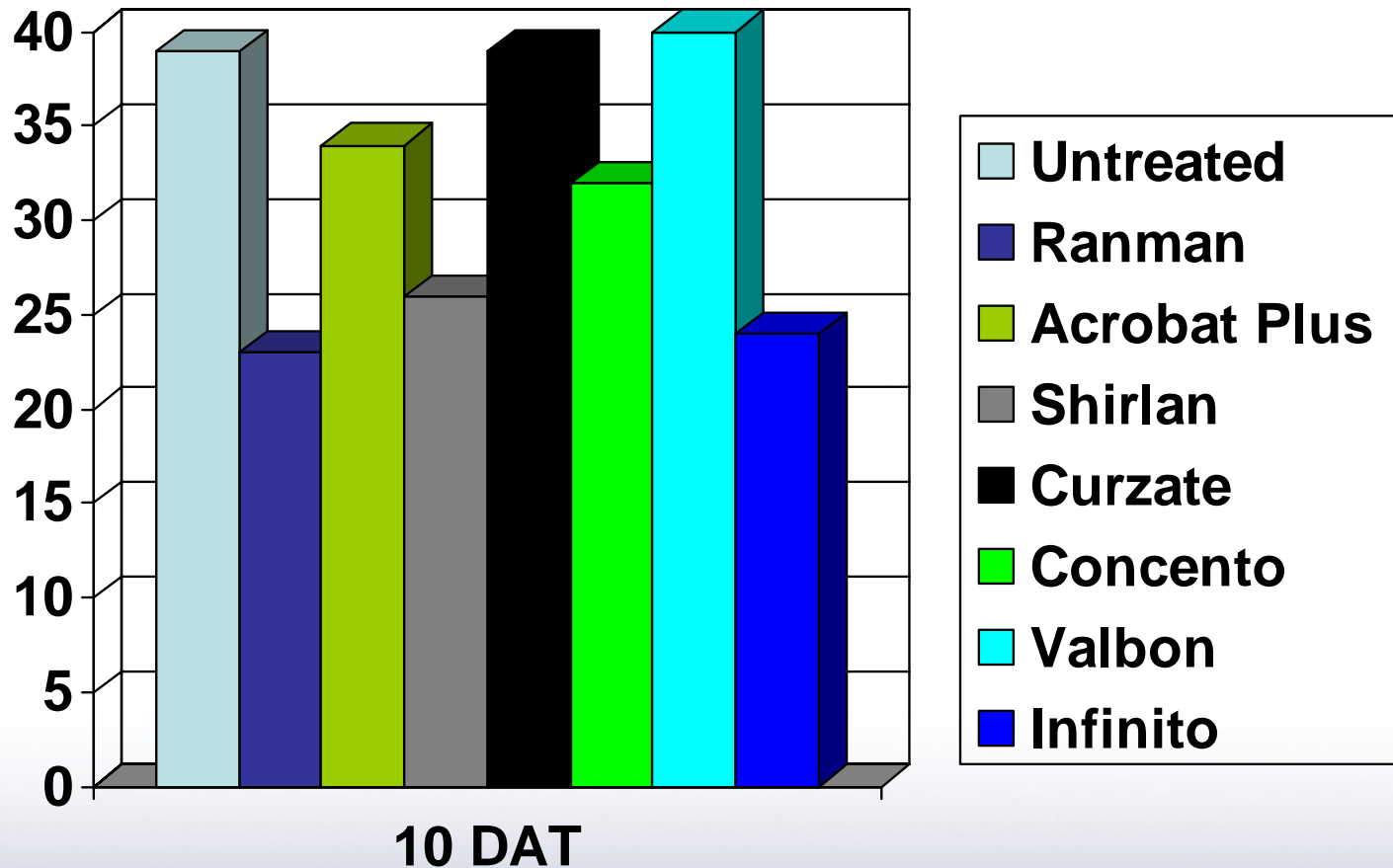


# SAC: Infection in relation to fungicide and leaf surface - 6 dat





# SAC: Infection in relation to fungicide and leaf surface - 10 dat

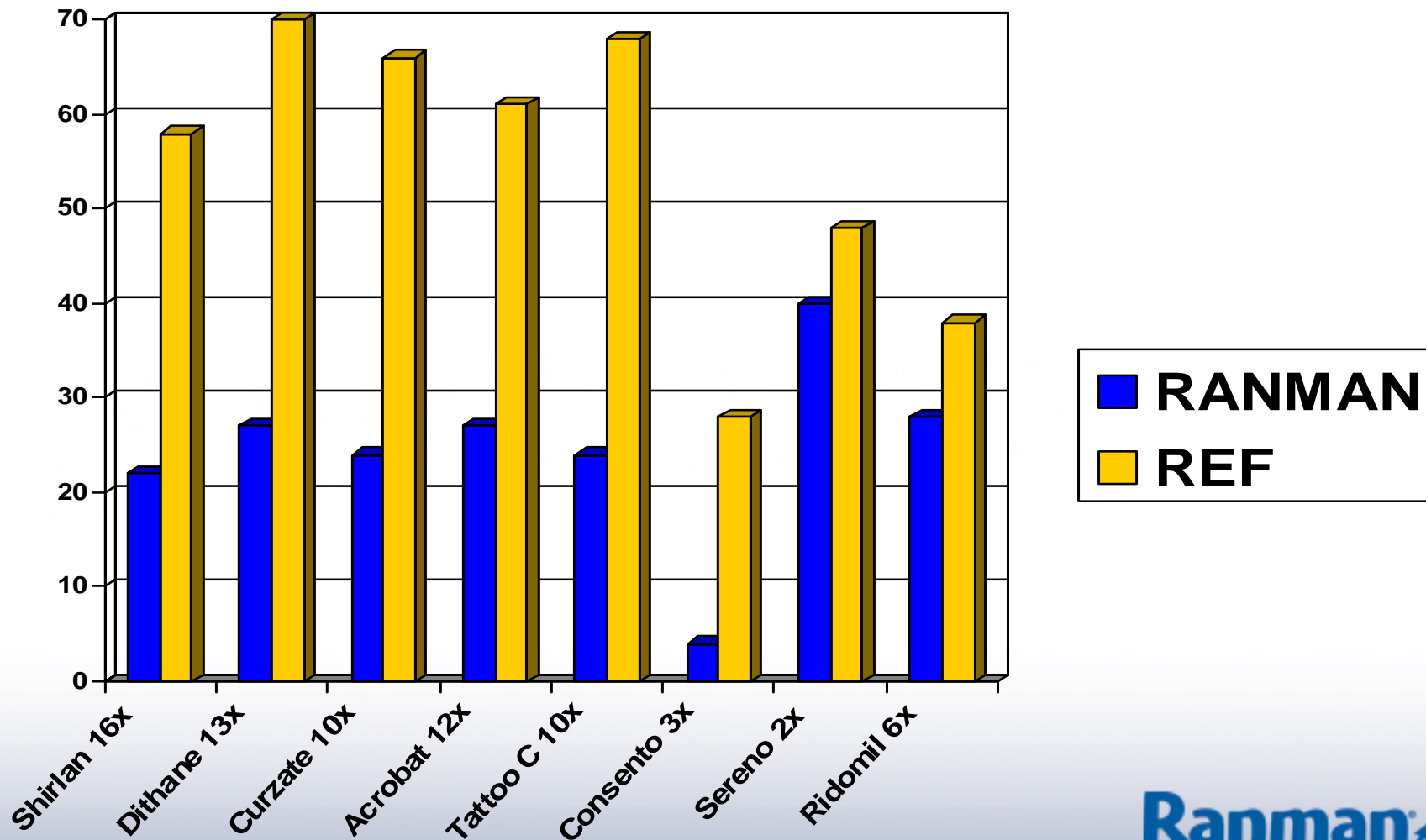




**AVERAGE 2001-2006**

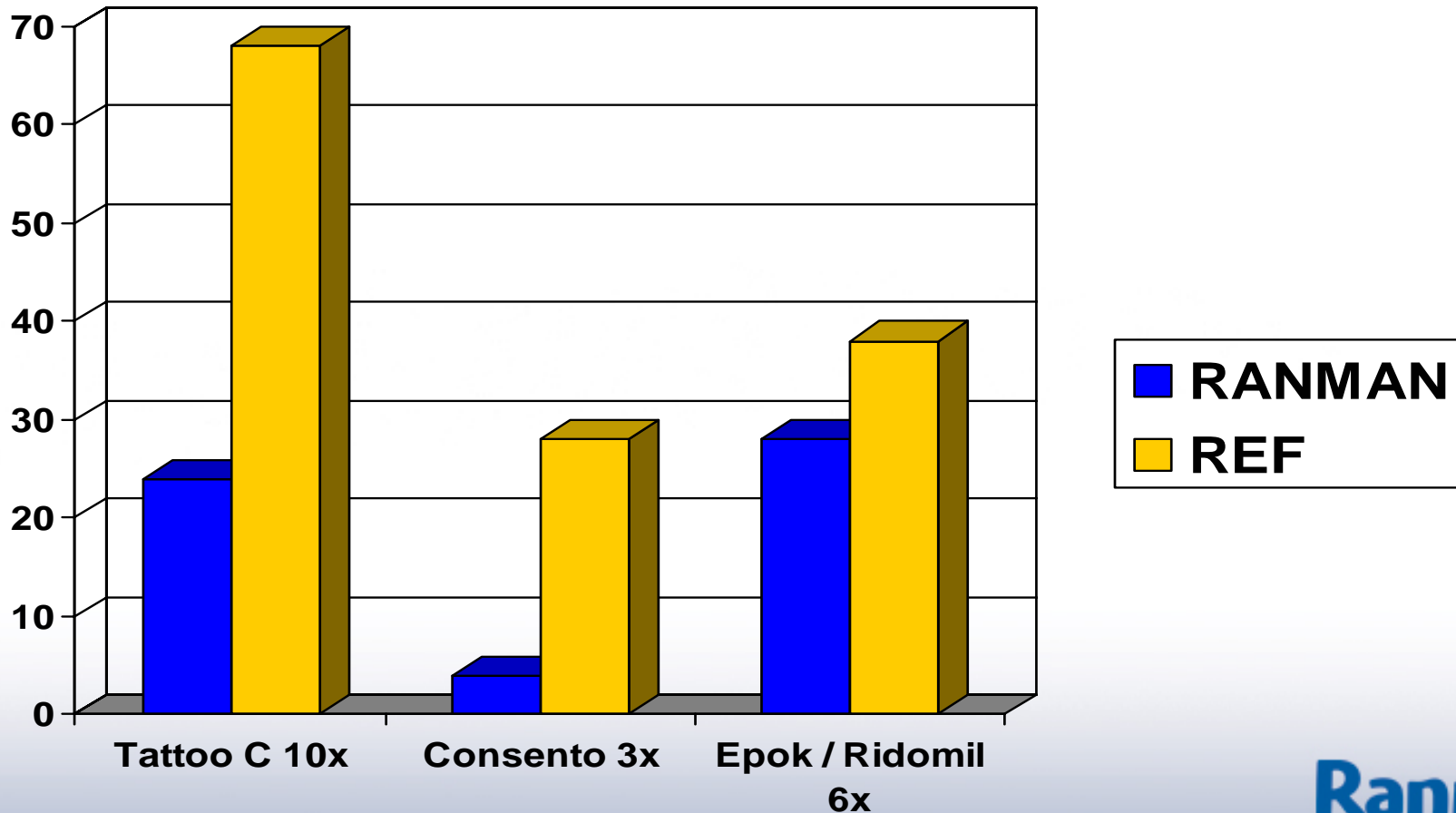


# Protection of the new leaves: average at 7 days



# Protection of the new leaves: average at 7 days

Ranman ↔ 'systemic' products







## Conclusions

- Ranman gives an outstanding tuberprotection and is mostly applied at the end of the season
- Results conducted last 5 years in internal and official trials showed an excellent preventive protection of the new growth.
- The efficacy of cyazofamid applied during the period of fast growth was comparable or better than with the systemic or partly-systemic products.





