

# IOBC / wprs Working Group “Breeding for Resistance to Pests and Diseases”.

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# Aims of WG



- **Exchange ideas**, information, screening techniques, insects, pathogens and plant breeding material.
- **Involve people exploiting HPR**; conventional or transgenic resistance of plants to pests and diseases (public and private sector). **c. 50 active members**.
- **Promote utilisation** of pest- and disease-resistant plant varieties in IPDM, increasing sustainability and environmental compatibility of agriculture and horticulture.

# Strengths and weaknesses



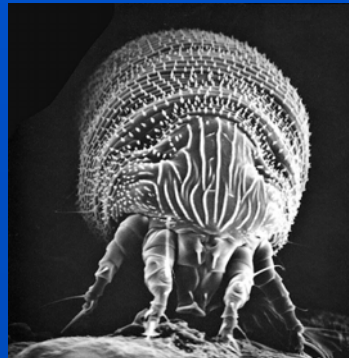
- **Integrates** several disciplines.
- **Public and private** sector plant breeding.
- **Includes biotech** approaches (GM, MAS).
- **Funding growing** for collaboration in EU (NoEs, postdocs, etc).
- **Future of HPR** now brighter (pesticide reductions in EU, GM crops limited in EU, IPM).
- **Small group**, but **expanding** again (E. Europe, Russia, non wprs speakers).
- **Pathologists** Now includes (**need more**)
- **Links** to Inducible Resistance WG (joint meeting, 2006)

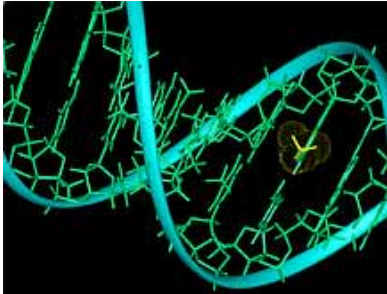


# General Activities 2003-2005



- WG meetings are held every **three years**
- Last meeting in **Poland, Sept 2005**.... *details later*
- Report recent research results, exchange ideas and experimental materials (**IOBC bulletin submitted**).
- **Plan collaborations** between entomologists, pathologists and plant breeders / biotechnologists on insect-pathogen-plant interactions (**IPDM**).





# Specific Activities



- **Aim to identify genes or sources of plant resistance** to important insect, mite, nematode pests and to diseases.
- **Determine mechanisms** of biological, biochemical and genetic basis of resistance.
- Assess the potential for **resistance-breaking biotypes/pathotypes** to adapt. Strategies for using resistant crops to extend durability.
- Exploit the pest + disease resistance in sustainable **IPDM** programmes, reducing pesticide use.



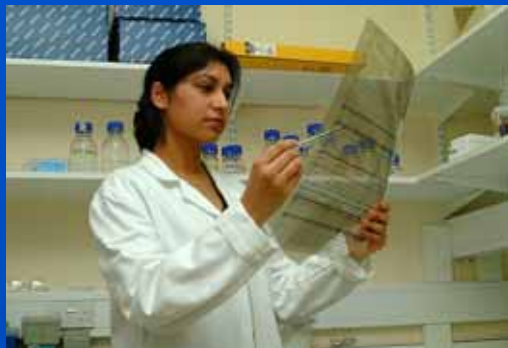
## Last meeting: Bialowieza, Poland, Sept 2004



- The 10<sup>th</sup> WG meeting was held 15-19 Sept 2004.
- Attended by 7 plant breeders (private + public sector), 13 entomologists, 8 biochemists, 6 plant biotechnologists, 8 plant physiologists, 1 plant geneticist, 2 phytochemists, 3 plant pathologists (**48 in total**).
- Very successful in stimulating discussion between scientific disciplines (IPDM).
- Good programme (scientific and social).
- Bulletin submitted (**136 pages, 24 presentations**)

# Current topics

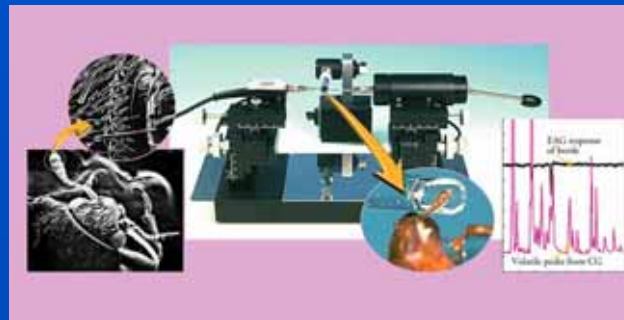
- Use of marker-assisted breeding for pest and disease resistance (commercial IP)
- Optimal use of pest and disease resistance genes (conventional and GM) within an IPM framework.
- New sources of durable resistance genes.
- Biosafety (e.g. non-target effects).
- Consumer acceptance, socio-economic assessment of durable resistance (e.g. enabling reduced pesticide usage).
- Funding joint research and travel to meetings!



# Links to other WGs



- The WG is keen to attract **active participation** from biotechnology and plant breeding companies, as well as **other IOBC WGs**.
  - **Links** with IOBC Global and wprs WGs on **GM crops / IPM using pest resistant cvs.**
  - **Link to IPDM WGs** (biosafety, durability, +ve interactions)
  - **Link to WG on Inducible Resistance** (joint meeting in Crete April, 2006) .
  - **Link to Semiochemicals WG** (raspberry pests)
- Involve **pathologists** e.g. Poland workshop



# Next meeting, April 2006

## 2 WGs – ‘Breeding for Inducible Resistance against Pests and Diseases’

- 27-29 April 2006, in Crete
- Organisers: Dr Annegret Schmitt and Nick Birch
- Local organisers: Nikolaos Fanourakis + Nikolaos Malathrakis
- Hosts: Technical Education Institute, Crete
- Invite linking WGs

### *Issues for 2006-7:*

- Election: New convenor and deputy (2007?)
- Fund raising, sponsorships etc
- Support for young scientists, E. Europeans, etc
- Convenor's travel expenses to attend meetings

