

PEST MANAGEMENT RESEARCH IN AND FOR A CHANGING WORLD

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“If you want
to understand
today you
have to search
yesterday.”

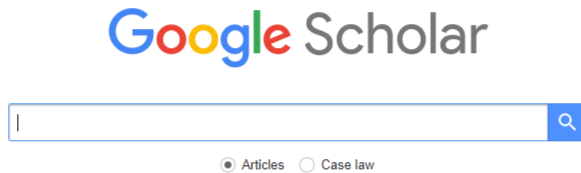
Pearl Buck



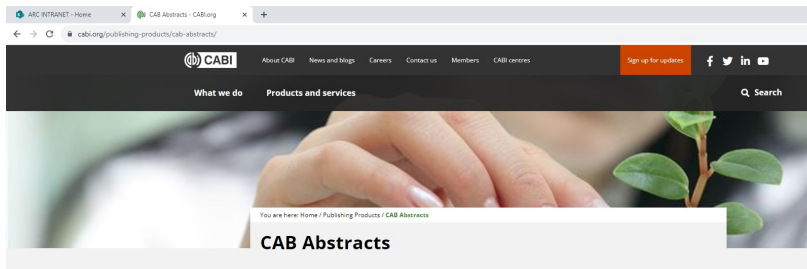
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But there was also time to think things through

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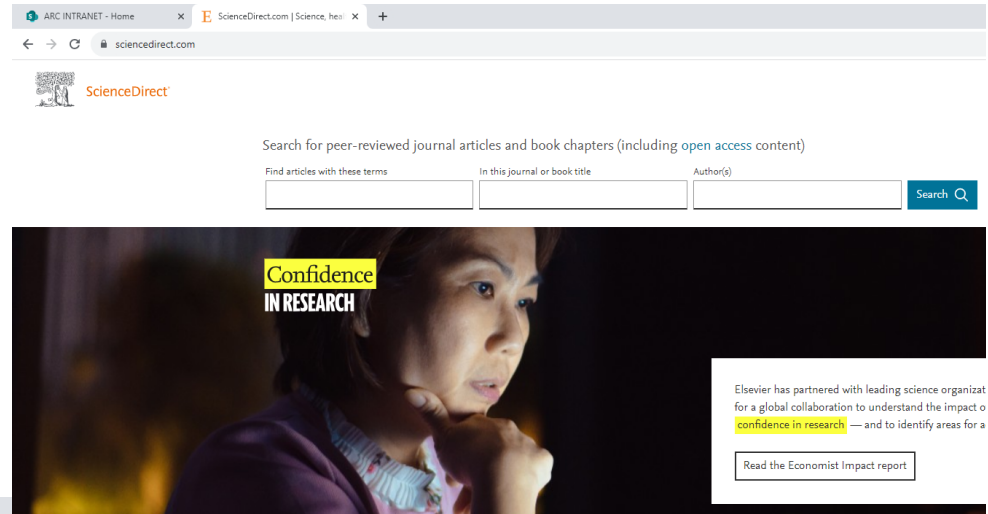
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- Genetic manipulation of crops and organisms for biological control





BEWARE

- Faster is not always better: everyone wants a reply or response now, but respond in haste, repent at leisure!
- Pressure to finish projects, produce publications $\Rightarrow$ research aimed at short term results (superficial); in-depth studies take time



- The most advanced tools and technology cannot replace an observant researcher with a thorough understanding of the pest and its relationships with its host plants and with its environment.
- Well thought-through proposals, experiments, publications and recommendations will stand the test of time.

THEN

How has pest management research changed?

A detailed pest management calendar chart titled 'TIE VAN BEHANDELING' (Timing of Treatment). The chart is organized into columns for different months (JANUARI, FEBRUARI, MARCH, APRIL, MEI, JUNI, JULI, AUGUST, SEPTEMBER, OKTOBER, NOVEMBER, DECEMBER) and rows for different pest types (VLIET, BLAD, STAM, WORM, etc.). The chart uses red and yellow shading to indicate the timing of treatments for each pest type throughout the year. The chart is titled 'TIE VAN BEHANDELING' (Timing of Treatment) and includes a legend for 'BLAD' (Leaf) and 'STAM' (Stem). The chart is organized into columns for different months (JANUARI, FEBRUARI, MARCH, APRIL, MEI, JUNI, JULI, AUGUST, SEPTEMBER, OKTOBER, NOVEMBER, DECEMBER) and rows for different pest types (VLIET, BLAD, STAM, WORM, etc.). The chart uses red and yellow shading to indicate the timing of treatments for each pest type throughout the year.

- Research focused on chemical control of pests
- Biological studies done to support decision-making for chem. control

NOW

Focus shifted
to integrated
pest
management
that seeks to
include
alternatives
to chemicals



Driven by

- Market demands for residue free fruit and wine, sustainable production
- Regulatory pressure: products banned
- Pest resistance to chemicals

Paradigm shift

- Research now focuses on understanding pest biology and dynamics and looking to include alternative management strategies.
- Highly mobile indigenous and other polyphagous pests cannot be eradicated from vineyards and the surroundings with chemicals. Management requires a different approach to pests that feed only on grapevines – protect vulnerable stages of the crop.



Biological control options available commercially



- ❖ Pheromones used in mating disruption and attract & kill
- ❖ Predators
- ❖ Parasitoids
- ❖ Insecticidal viruses & bacteria



Developing biological control options

- Entomopathogenic fungi (EPF) and nematodes (EPN): 15 years of lab screening of local spp. and isolates, need field testing to drive commercialization
- Deterrents, repellents & attractants for “push–pull” also require research into formulation





Resistance breeding

- Conventional and GMO technology – consumer resistance to GMO's
- No plant is resistant to all pests and diseases – this war has been going on for millions of years
- Resistance features at odds with consumer demands; thick skins & higher tannin levels

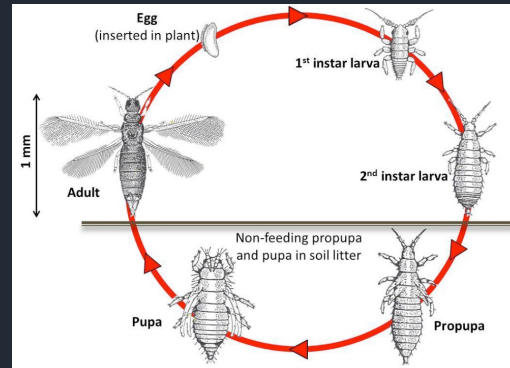


CHALLENGES TO PEST MANAGEMENT

Previously unimportant insects suddenly reaching economic pest status $\leftarrow$ climate change, introduction of new crops and less use of broad-spectrum insecticides

Outbreaks of sporadic pests due to erratic weather patterns – difficult to manage because growers do not routinely monitor for their presence and can be caught off guard





OBSTACLES TO DEVELOPMENT AND ADOPTION OF IPM

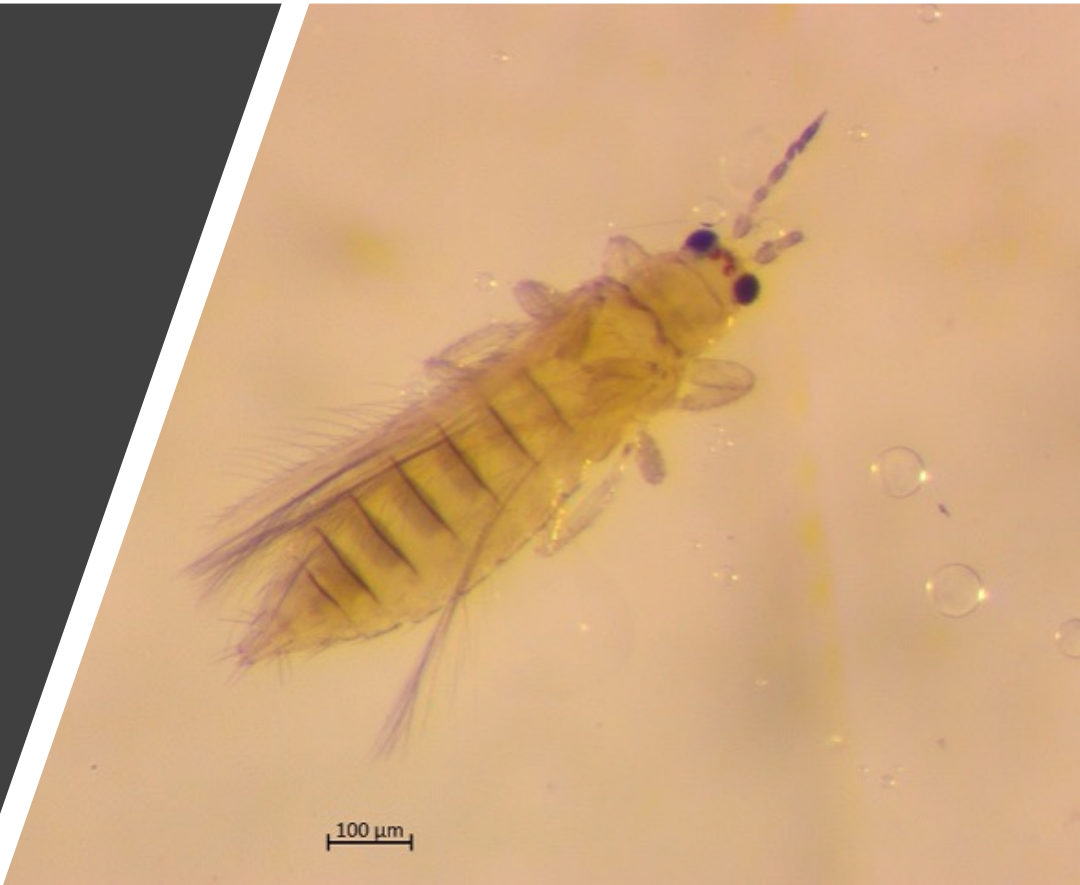
IPM is

- Knowledge-driven
- Management intensive
- Site/situation specific; no one-size-fits-all recipe
- Vested interests from Agchem industry



THE CHALLENGE AHEAD

- Many indigenous insect and other pests occur only here, need **home-grown knowledge and solutions**
- Investment in local research capacity and infrastructure is essential



*THANK YOU
DANKIE*

