



Research on CpGV resistance in
Germany and in the European
project „SustainCpGV“

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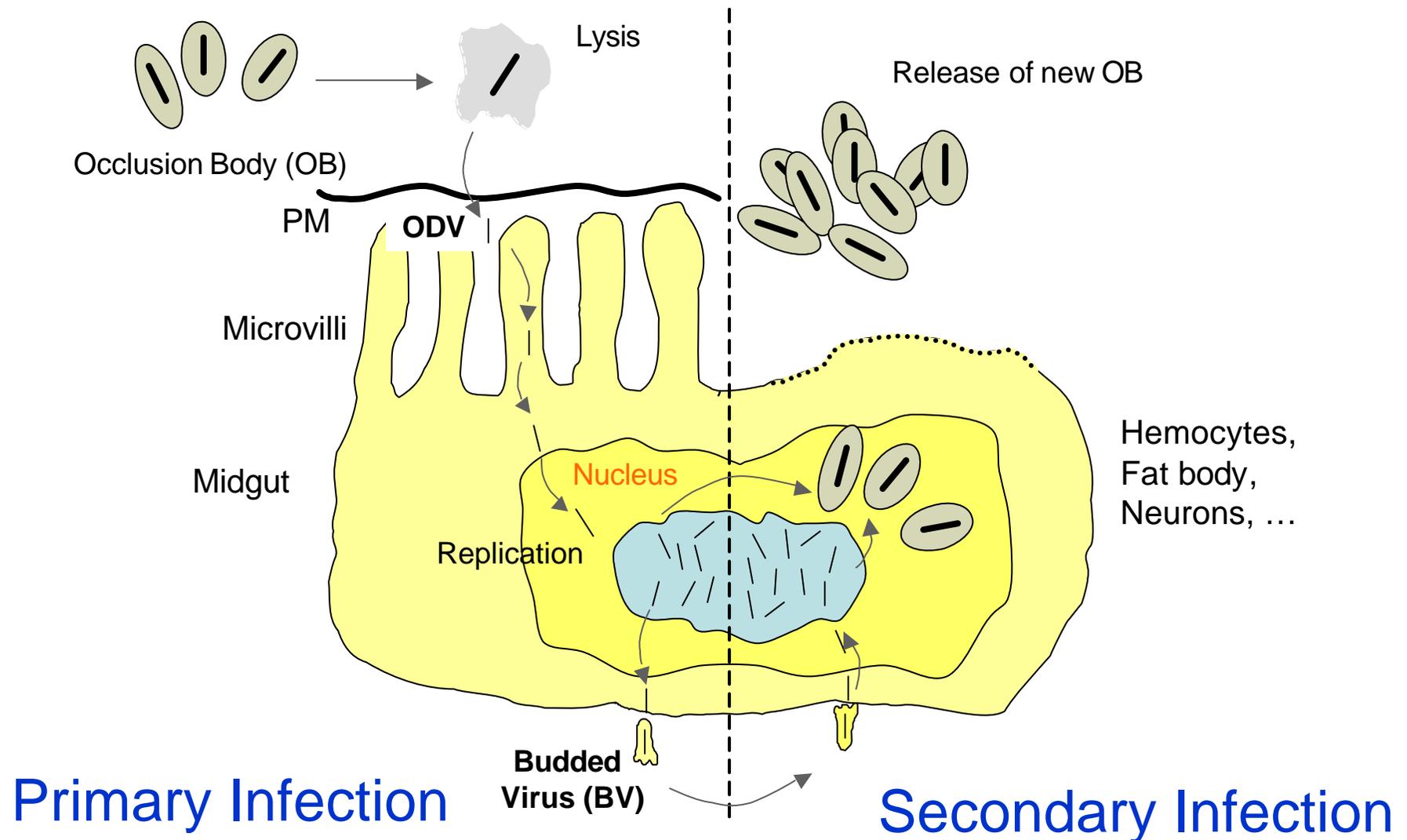
Dienstleistungszentrum Ländlicher Raum – Rheinpfalz
Abt. Phytomedizin
AG Biotechnologischer Pflanzenschutz,
Breitenweg 71, Neustadt a. d. Weinstraße

The occurrence of resistant CM populations

- 2003/2004** first observations of organic orchards, where CpGV products had low efficacy (Kienzle, unpublished)
- 2005** 1st report of two CM populations in South Germany with up to 1000fold reduced susceptibility to CpGV (Fritsch et al., 2005)
- 2006** 1st report of resistant population in France (Sauphanor et al., 2006)
- 2006** ~ 10 other CM populations with CpGV resistance in Germany (Huber, pers. Comm.)



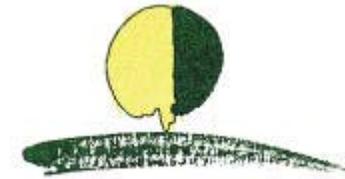
Baculovirus infection cycle



What do we need to know?

- Biochemical and molecular mechanism of low susceptibility
- Geographic distribution of low susceptible populations
- Frequency of resistance alleles in CM populations (population markers)
- Dynamic (selection, inheritance)

Management of the low susceptibility of codling moth populations against CpGV



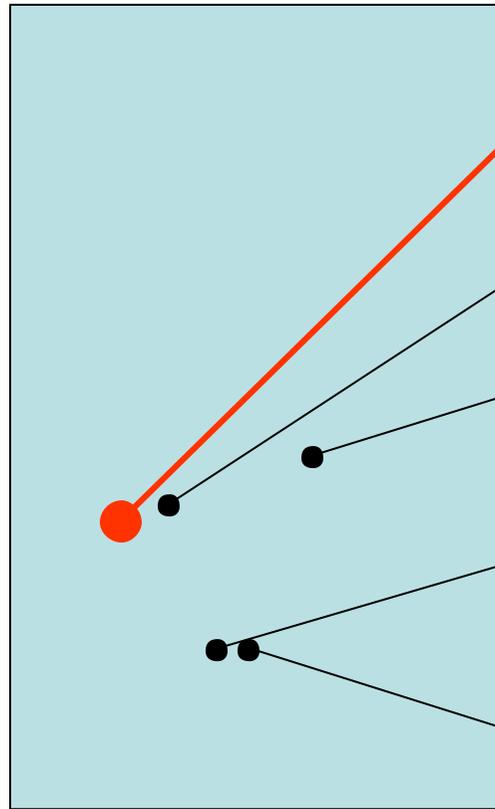
DLR Rheinpfalz



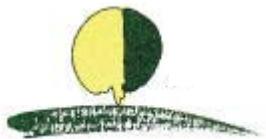
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Föko e.V.



Management of the low susceptibility of CM populations against CpGV



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Mechanism and genetics of resistance



Survey of the CpGV susceptibility of CM populations in Germany



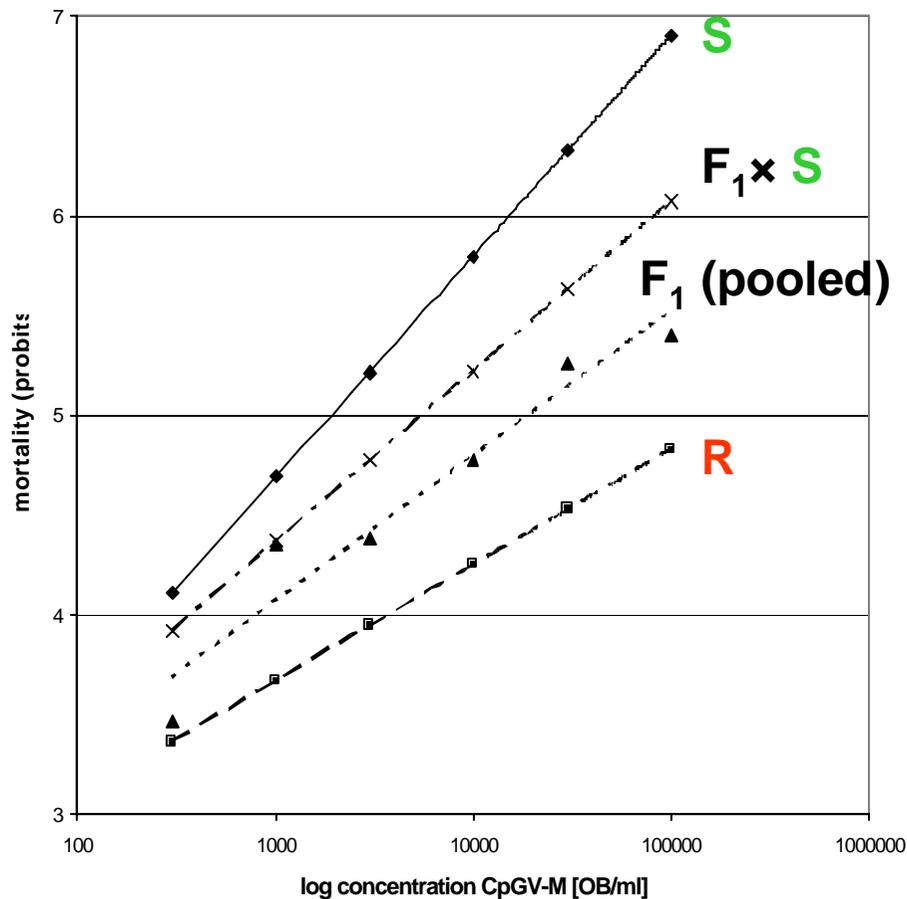
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Development of molecular population markers of resistant CM populations

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Implementation and transfer of research to extension service and apple growers

Results of mass crossing experiments



- Autosomally inherited
- Incompletely dominant
- Most likely polygenetic

Eberle & Jehle (2006) JIP (in press)



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Neustadt/Wstr.

Biotechnological
Crop Protection

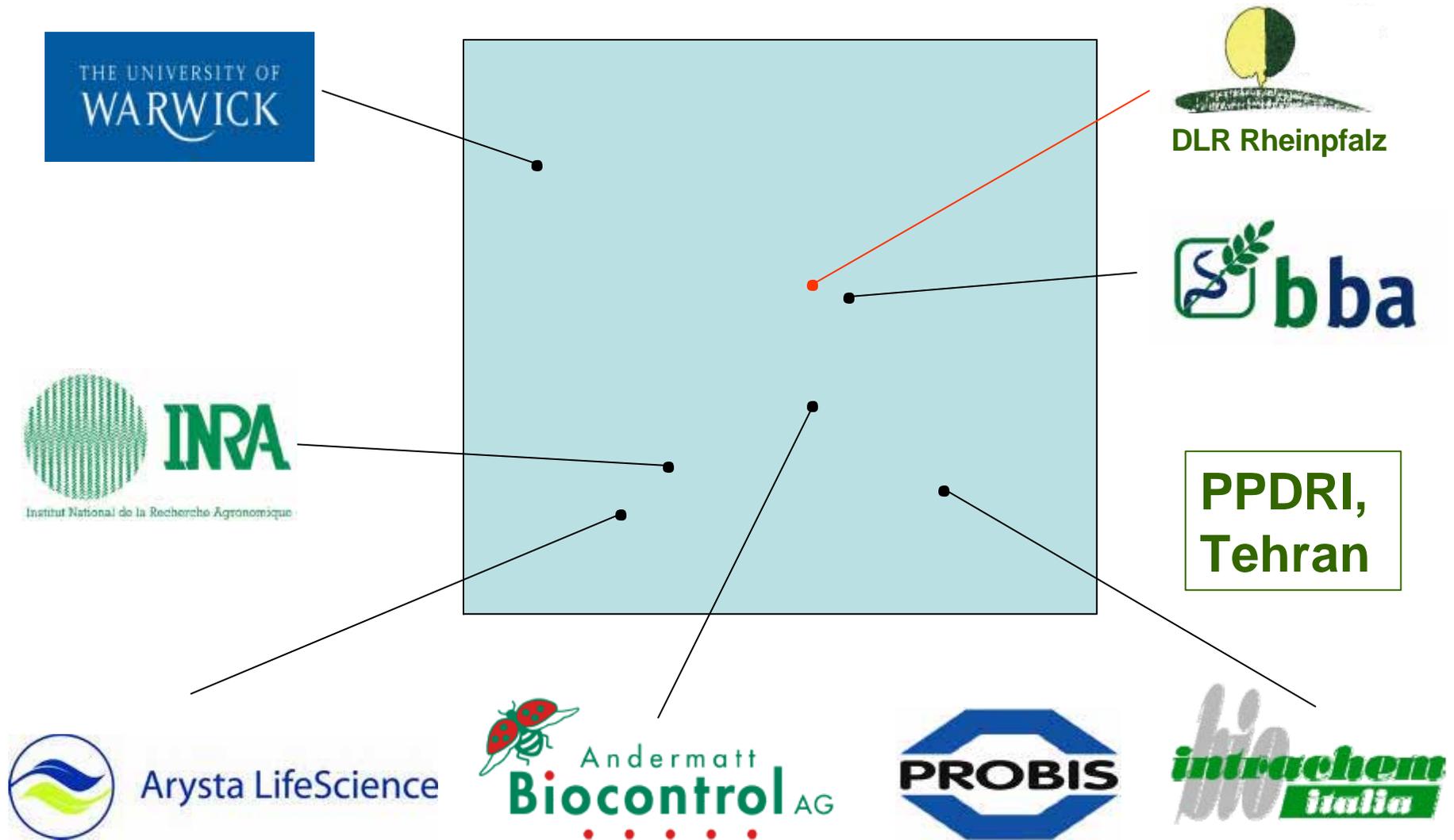


SustainCpGV

Sustaining the long-term efficacy of *Cydia pomonella*
Granulovirus products for control of the codling moth
(2006-2008)

Co-operative Research Project (CRAFT)

SustainCpGV

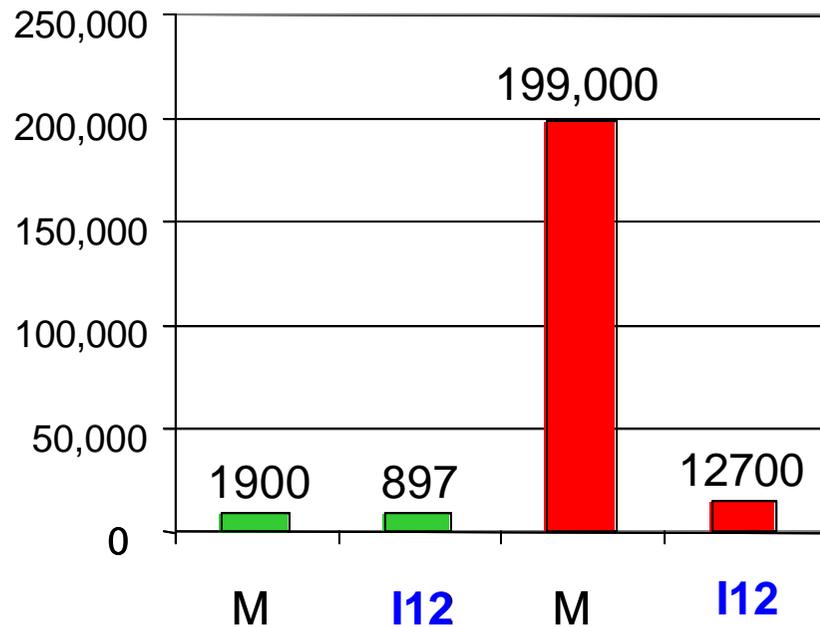


SustainCpGV

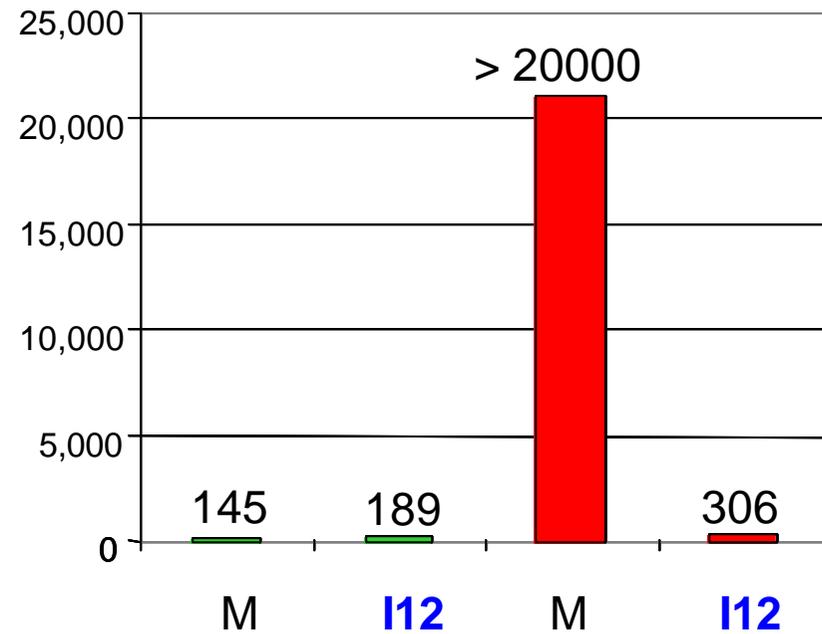
- WP 1 CpGV susceptibilities of CM populations in Europe
- WP 2 Immune response of CM to CpGV infection
- WP 3 Identification and characterisation of more virulent CpGV isolates
- WP4 Production, formulation and field testing of novel CpGV products

CpGV-I 12 overcomes resistance!

**LC₅₀ in S and R
after 7 days**



**LC₅₀ in S and R
after 14 days**



More information coming up soon ...

www.SustainCpGV.eu

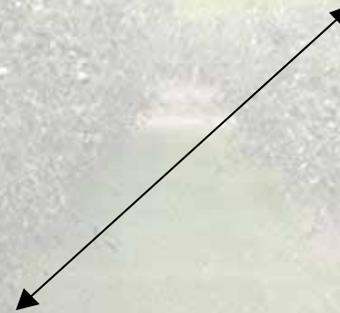
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The crucial „Ms“ of Resistance

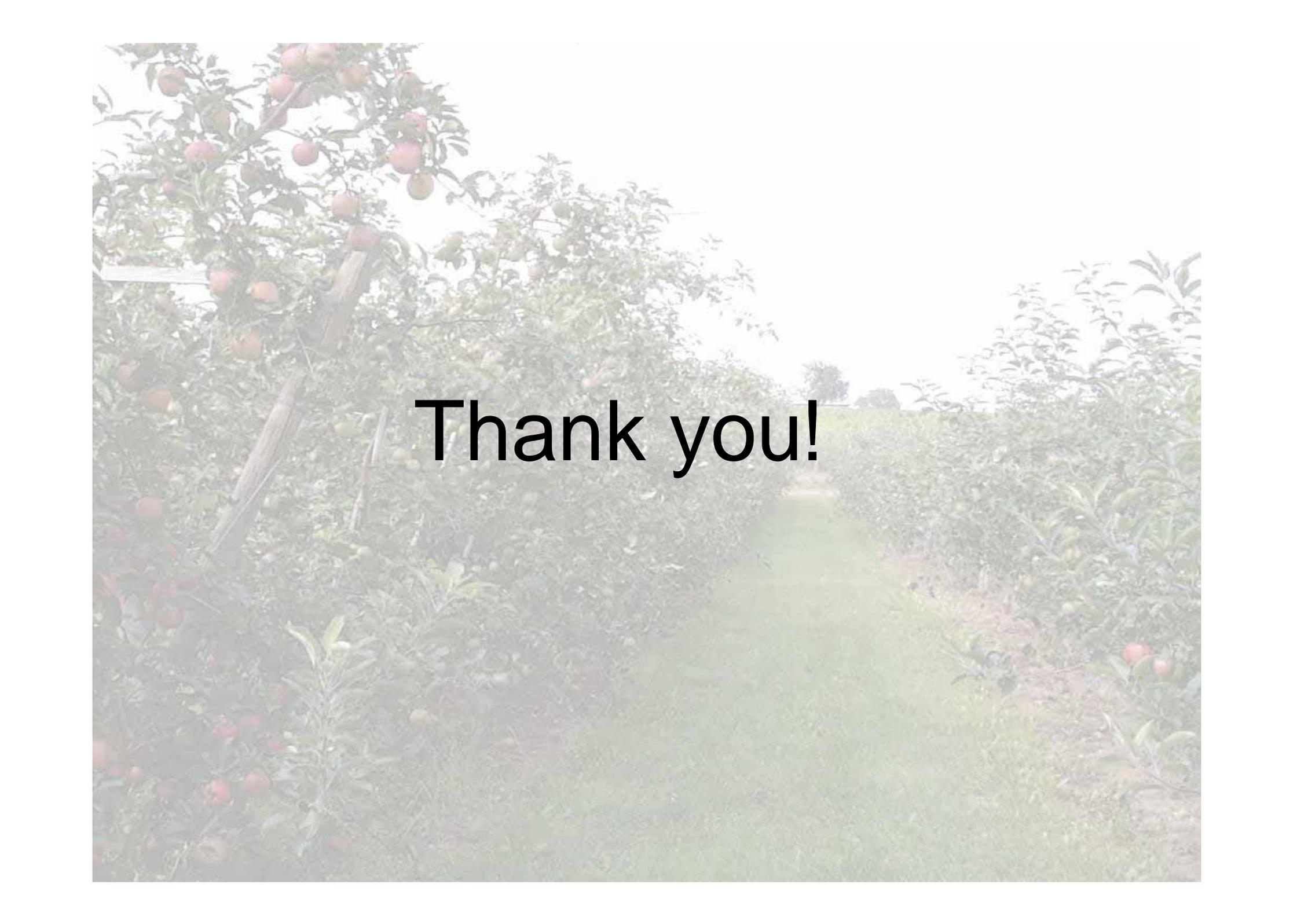
Mechanism(s)



Monitoring



Management

A photograph of an orchard with rows of trees and a path, overlaid with the text "Thank you!". The trees are heavily laden with ripe, reddish-orange fruit. The path is a narrow, light-colored strip of ground running through the center of the orchard. The overall scene is bright and clear, suggesting a sunny day.

Thank you!