



Schweizerische Eidgenossenschaft
Confédération suisse
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Federal Department of Economic Affairs,
Education and Research EAER

Agroscope

The necessity and difficulty to involve stakeholders in developing and implementing IPM solutions

Robert Baur

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Agroscope

2 case studies: It's all about carrots





contents

- **Agroscope**: who we are and what we do
- Our approach to stakeholder involvement: extension
- **2 case studies compared**
 - what was the problem?
 - who wanted to solve the problem?
 - Solutions and Stakeholder involvement
- **Conclusions**
 - Motivation
 - Co-innovation
 - Communication / boundary work

Agroscope: The Agricultural Research Stations of the Swiss Confederation

- 900 employees
- Associated to ministry of agriculture
- Research & development, expertise and advise for:
 - Farmers and the agri-food chain,
 - Agricultural advisory services
 - the federal ministries for:
 - Agriculture
 - Environment
 - Public health



Research
for impact

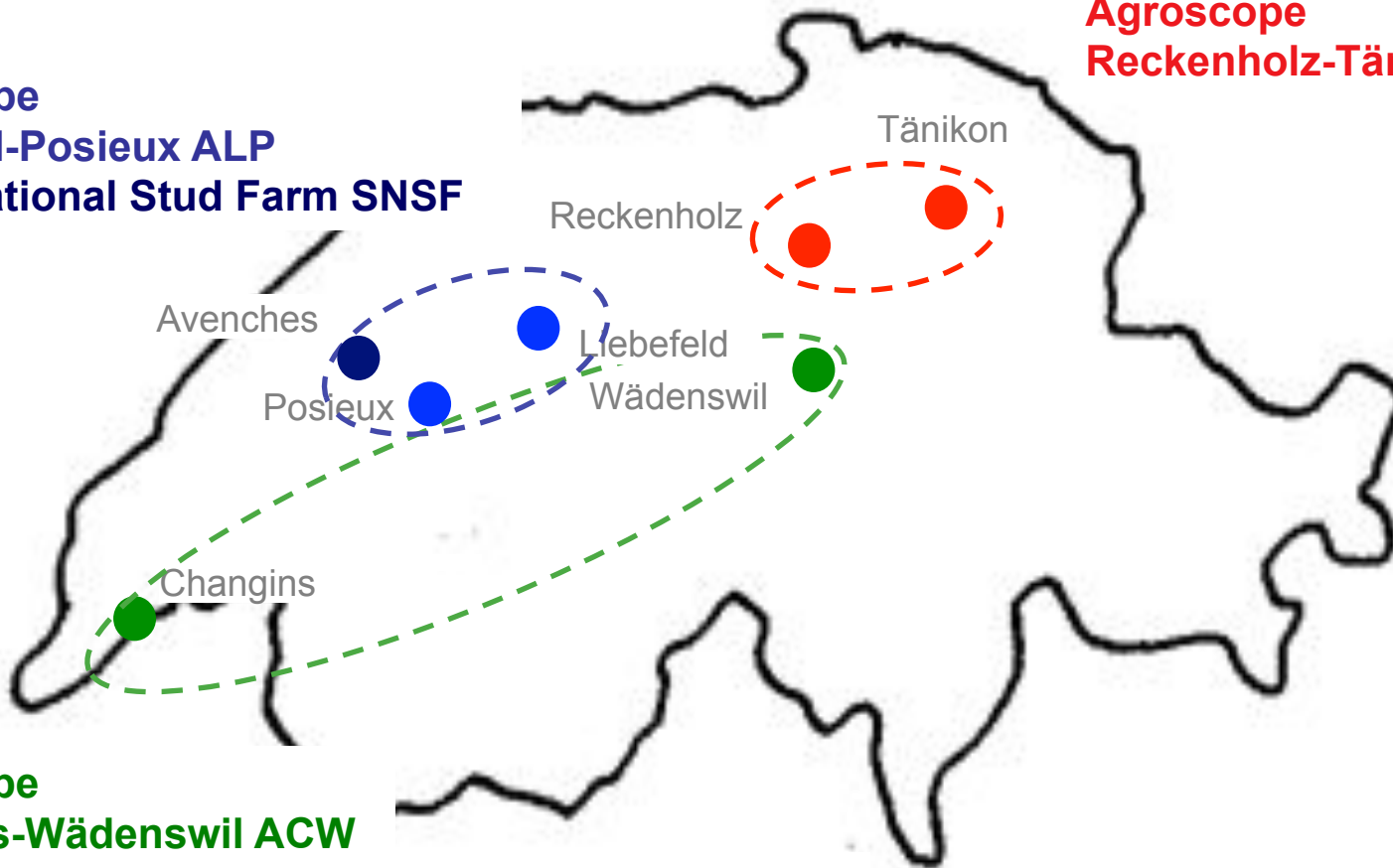




Agroscope locations

**Agroscope
Liebefeld-Posieux ALP
Swiss National Stud Farm SNSF**

**Agroscope
Reckenholz-Tänikon ART**



**Agroscope
Changins-Wädenswil ACW**

«extension»: an Agroscope approach to involve stakeholders

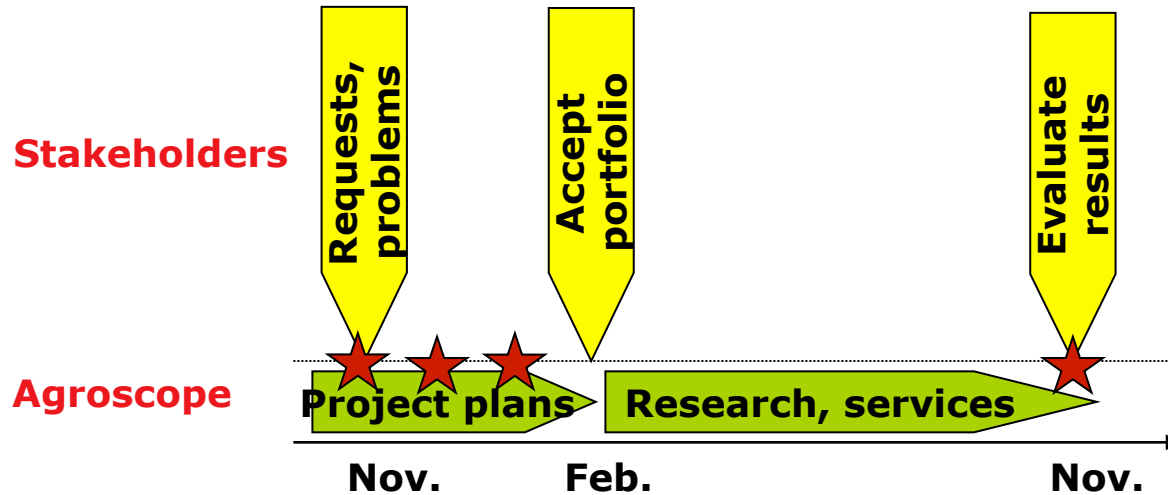


- To respond *in time* to the *most important* needs and problems.
- To provide solutions which:
 - can be implemented
 - are holistic and sustainable
 - are economically interesting.
- To facilitate implementation by co-ownership of knowledge.
- Let stakeholders set the priorities.
- Let the stakeholders evaluate the projects.
- Interact and work transdisciplinary.



How does the Agroscope Extension work?

Stakeholders set priorities and evaluate results



★ = interaction, feedback
co-innovation ?



2 carrot case studies compared



- Carrot root fly



- Black root rot (chalara spp.)





2 carrot case studies compared what is the problem?



- **Carrot root fly**
- Yield losses 0% - 25%
- Detected after harvest or after storage.



- **Black root rot (chalara spp.)**
- Yield losses = ?
- Detected after storage or at point of sale or after purchase.



2 carrot case studies compared who needs a solution?



Carrot root fly

- Economic impact for farmers only
- → Farmers need solution



Black root rot (chalara spp.)

- Image problem for retailers → pressure on storehouses → are growers responsible ?



How did Agroscope get involved



Carrot root fly

- Problem assigned high priority by grower's extension forum



Black root rot (chalara spp.)

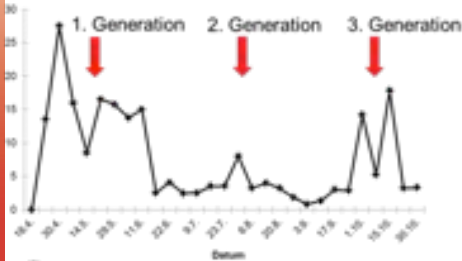
- Request for solution by wholesaler/retailer association (Swisscofel).
- Co-financed project:
 - 25% Swisscofel
 - 25% grower's association
 - 50% government



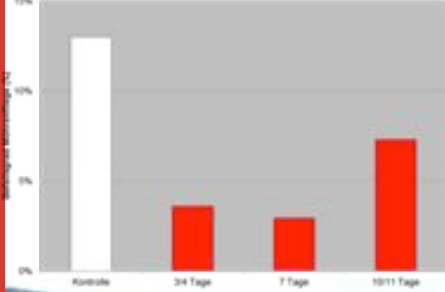
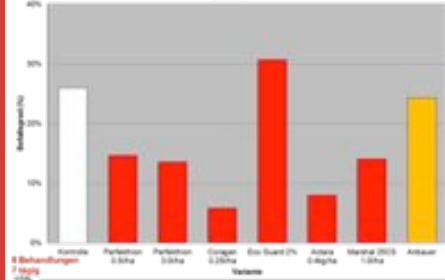
Carrot root fly: research approach



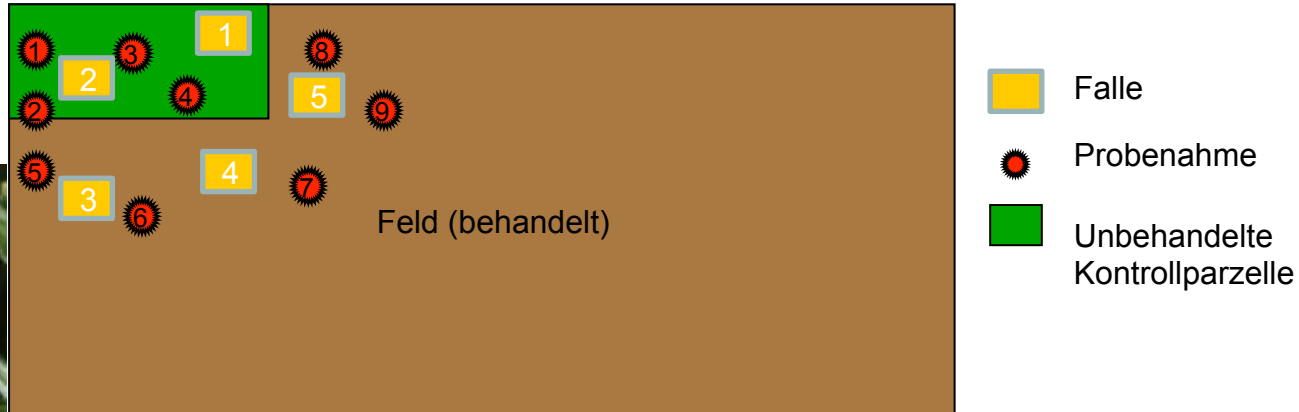
Möhrenliegenflug Standort Sandhof, Wädenswil CH



- Well known problem:
- soil insecticides no longer approved
- Research approach:
 - new insecticide strategies against adult flies based on leaf treatments
 - Timing of sprayings
 - Spray intervals
 - monitoring / supervised control
 - thresholds
- **Elements known but participatory work needed to develop best practise strategies**



On-farm development of IPM strategy 2010 / 2011



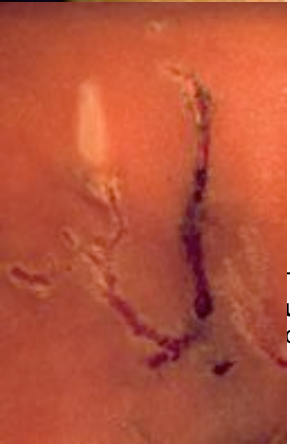
Project plan:

- in every carrot growing regions several farms, recruited by regional advisory services (total 12 – 15)
- common trial protocol
- conclusions from compiled results → improved protocols for following year.

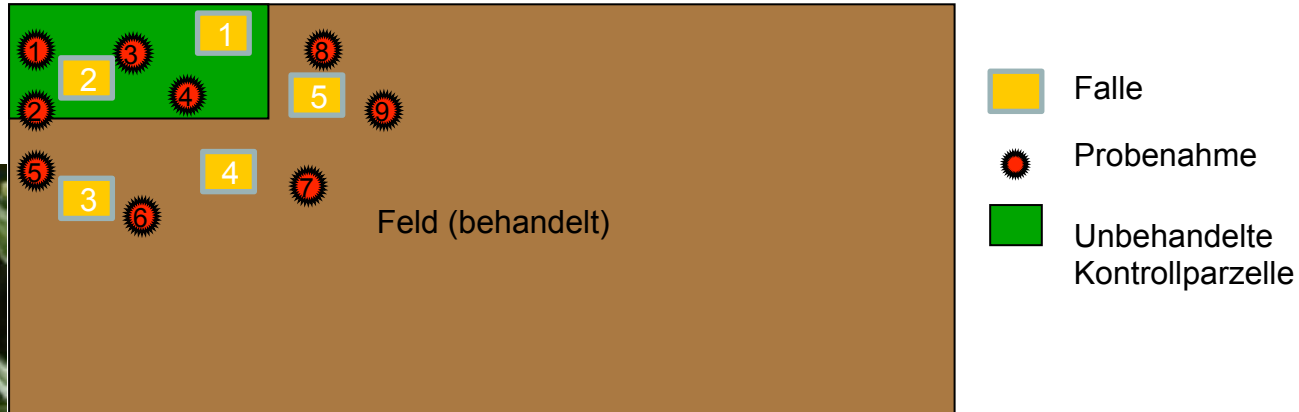
On-farm development of IPM strategy 2010 / 2011

Project organisation

- Agroscope extension vegetable crops
- On-farm support: regional advisory services
- On-farm trial assistance: farmers.



On-farm development of IPM strategy 2010 / 2011



- However: only 3 farms involved
- No conclusions possible
- Project stopped without convincing solution
- Ongoing complaints from growers
- Feeling of researchers. «one more project for an IPM solution that fails at the stage of implementation in practise».



Black root rot (*Chalara* spp): Who is to blame?

- Chalara = soil-borne disease → farmer
- Harvest conditions/technique → farmer
- Development temperature-dependant → storehouse
- Cross-contamination in washing process → storehouse
- Maintenance of cold-chain → retailer
- **Farmers vs post-harvest actors**
- **Single point solution vs chain solution**





Black root rot (Chalara spp): project organisation

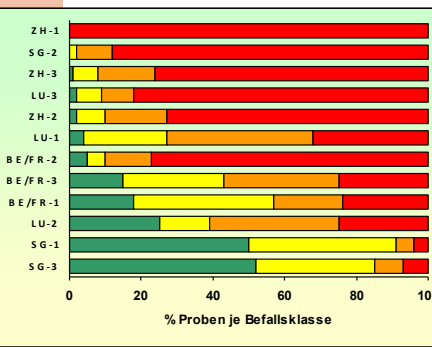


- Objectives, resources and controlling:
board representing grower's and post-harvest chain organisation
- Research and dissemination of results:
 - Agroscope extension team vegetable crops.
 - team of storehouse staff,
 - grower advisors

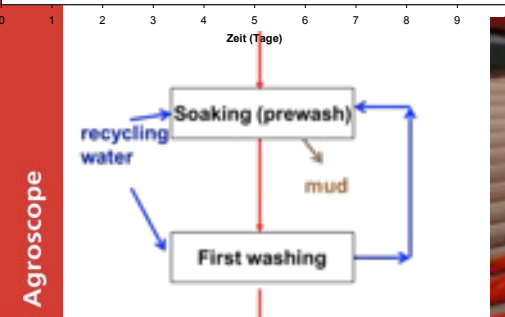
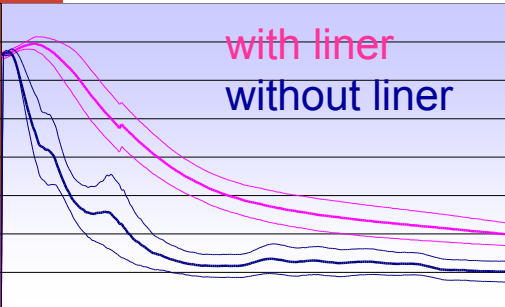




Black root rot: research and solutions



- All **soils contaminated**, variable degrees
 - bioassay to exclude most contaminated fields
- **Storage** climate and **container** types
 - harvest at cool temperatures
 - analysed and improved in all major storehouses
- Cross contamination in recycling-water **washing process**:
 - last step with fresh water
 - evaluation of best equipment
 - high-pressure shower as last step
- **Cold chain**: critical temperature: 8°C
 - transportation and in retailer's storehouses



European Co-Innovation Workshop
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Black root rot: control of implementation



- Assessment 3 years after end of project
- Complaints at POS: very few
- Farm level: recommendations known, largely implemented
- Storage: all facilities technically improved
- Washing process: re-designed, last step always fresh water
- Post-washing contamination: substantial improvement
- Cold-chain and POS-handling: improved but still mistakes

Project successful



Conclusions (I)

stakeholder's motivation to get involved

Carrot root fly

- carrot growers, depending on regional infestation pressure
- Perception: «research wants us to find a way to live with a bad option.»
- Expectation with respect to solution not met by offered options solution

Black root rot

- Pressure of retailer companies on all actors in chain
- Perception: «we paid for the project, so we make sure the researchers do what we want.»
- Possibility to contribute their own ideas

Lessons learnt:

- First analyse the stakeholder's motivation for involvement.
- Co-develop long-term goal rather than start with focus on solution.
- Try to influence the context in order to influence the motivation.



Conclusions (II)

co-innovation

Carrot root fly

- None
- Applied role model:
 - Science as innovator
 - Farmer as adopter

Black root rot

- Research:
 - system / problem analysis
 - Measurement of improvements
- Practical partner:
 - Provide ideas
 - Evaluate solutions
- In collaboration
 - Design solution (incl. iterations)

Lessons learnt:

- The practical perspective is not only «added value» but prerequisite for co-innovation.
- implementation was most supported for solutions based on ideas from practical partners.



Conclusions (III)

knowledge translation / boundary work

Carrot root fly

- Unidirectional
scientist → advisor → farmer
- Advisors not prepared to accept
role as boundary workers
- Scientists not aware of crucial
importance of boundary work

Black root rot

- Research team as boundary workers
- Boundaries to bridge:
 - Farmer – applied science:
mutual trust based on long-term
interaction
 - Post-harvest actors – science:
growing trust
 - farmer (practise) – retailer (practise):
most difficult, researchers not
legitimated as boundary workers

Lessons learnt:

- Even a long-term history in «stakeholder-driven research» does not
guarantee competence and awareness for boundary work
- Effort / resources for boundary work substantial but necessary



Thank you

