Aspects of Coexistence

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  FiBL

- Food and Democracy, Lucerne 25. April 2009

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Introduction

Outline

- Does recent research include the aspect of organic or gmo free farming
- The EU new legislation on organic farming and the situation of organic farmers
- Cost of coexistence: a case studie in france

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Recent research ignores GMO free Farming

There is no right for contamination!
If no or lowest contamination is tolerated by non-GM or organic farmers coexistence is much more Complicated or not feasible

The economic advantage of growing GM crops is estimated without costs of coexistence (neither on farm nor along the supply chain)

In small scale agriculture, farmers depend on each other: (sharing machinery, exchange of material and services)
Will farmers start to grow GM crops, if it harms neighbors?

- Social systems are ignored
  - Each farm is a company and the farmer is the “CEO”

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GMO Regulation in the EU

Food and feed made from genetically modified organisms or microorganisms need an authorisation (EU 1823/2003).

Placing on the market (Seeds, Fertilizer, Pesticides):
Approval procedures for GMO according to the directive on deliberate release into the environment (EU 2001/18)

- **Decision applies to all EU Member States**
- **Mandatory labelling if more than 0.9% GM material**
- **Traceabiliy for material without DNA**

Field trials/deliberate release: national law

Organism? Product of an Organism? Produced by an Organism?

- Organism: → labelling
  - Living (Seeds, Grains)

- Product from a GMO: → labelling
  - Flour, Starch, Glucose from
  - Meal from Oil Seed Ra
  - Biomass from Fer
  - Lecithine, Fla Soy
  - Oil of GM or Cotton

- Produ labelling, approval process unclear
  - Vitam), Amino Acids
  - Enzym inase, Amylase, Chymosin etc)

- Honey, Milk, Meat, Eggs: → no labelling

Excluded in Organic Farming

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introduciton

Organic Farming and GMOs

- The EU regulation on organic farming excludes the use of genetically modified organisms and products produced of GMOs (Article 9 Abs 1 (EG) Nr. 834/2007)
  - Feed and Food, Processing aids
  - Plant Protection Products,
  - Fertilizers, soil conditioners,
  - Seeds and propagating material
  - Micro-organisms, Plants, Animals
- Exception: veterinary products
- Exception for substances produced by micro organisms are possible. But today, there is no exception!

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Introdutction

Organic Farming and GMOs

- Organic Farming is affected by GMO in
  - Agricultural Production (plants, lifestock)
  - Transports and Processing
- GMO, products of GMO or products produced by an GMO have to be avoided along the whole production process.
- Organic Label is not possible with GMO labelling
- GMO admixture/contamination happens in organic production
- The legal threshold for adventitious, technically unavoidable admixtures of GMOs in 'bio' has been set at 0.9 % for food and feed/Processed products!
- A threshold of 0.1% for harvested material is set by private labels

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Introduction

Costs of coexistence

- Case study in France, Alsace: Heiwiller und Ensisheim - SIGMEA WP 7
- Cost model developed by SIGMEA Partners
  - Limited information exchange between farmers
  - GM Adoption rate: 10%, 50% und 90%
  - Isolation distances of 50m, 100m und 250m
  - Calculation of the affected area
  - Non GM Farmer gets a compensation for the contaminated harvest

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Introduction

- Peer reviewed information about the economy of gm crops for farmers from Spain
- Information about the cost structure of farms available from the administration
- Low information about the cost of coexistence measures

- Open questions:
  - Do the benefit of gm croping cover the cost of coexistence?
  - What about the costs for non-gm and organic growers?

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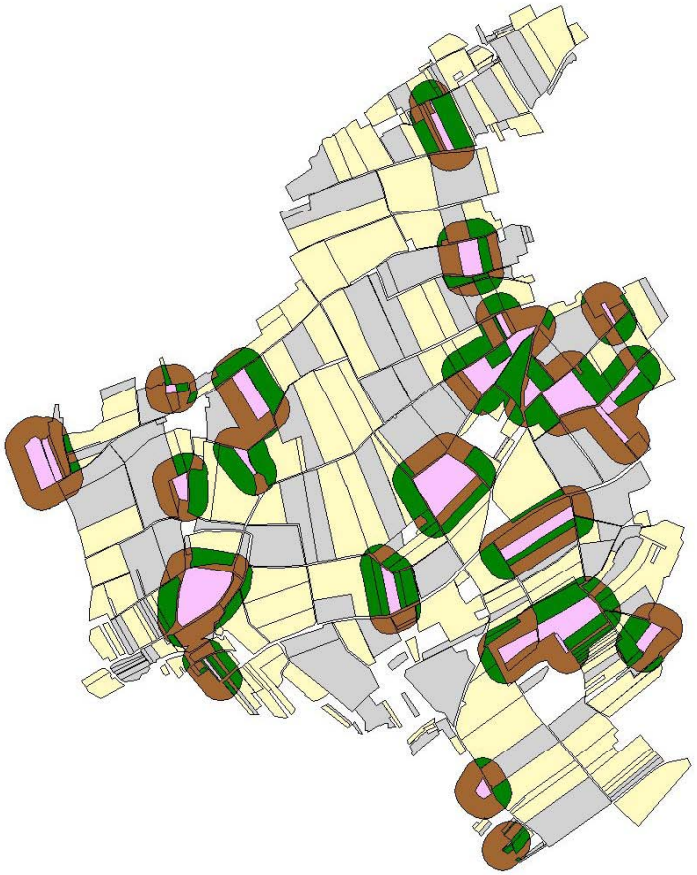
Methodology



Heiwiller (68)

0 500 1000 1500 2000 Meter

Mais
gv-Mais
LF ohne Mais
Abstandszone
Discardfläche

60% Maisanteil
10% gv-Mais
100 m Abstand

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Methodology

Cost Modell for Bt Maize

- Additional cost for the farmers due to
  - Higher Price for Bt-Seeds/ non GM Seeds
  - Higher cost for harvesting due to hired machinery

- New costs for the Bt Corn Producer
  - Compensation to the non GM Farmer
  - PCR und Monitoring
  - Information of other farmers and the Supply Chain

- Benefit
  - Higher yields
  - No insecticide use
  - Price Premium for non-GM Corn

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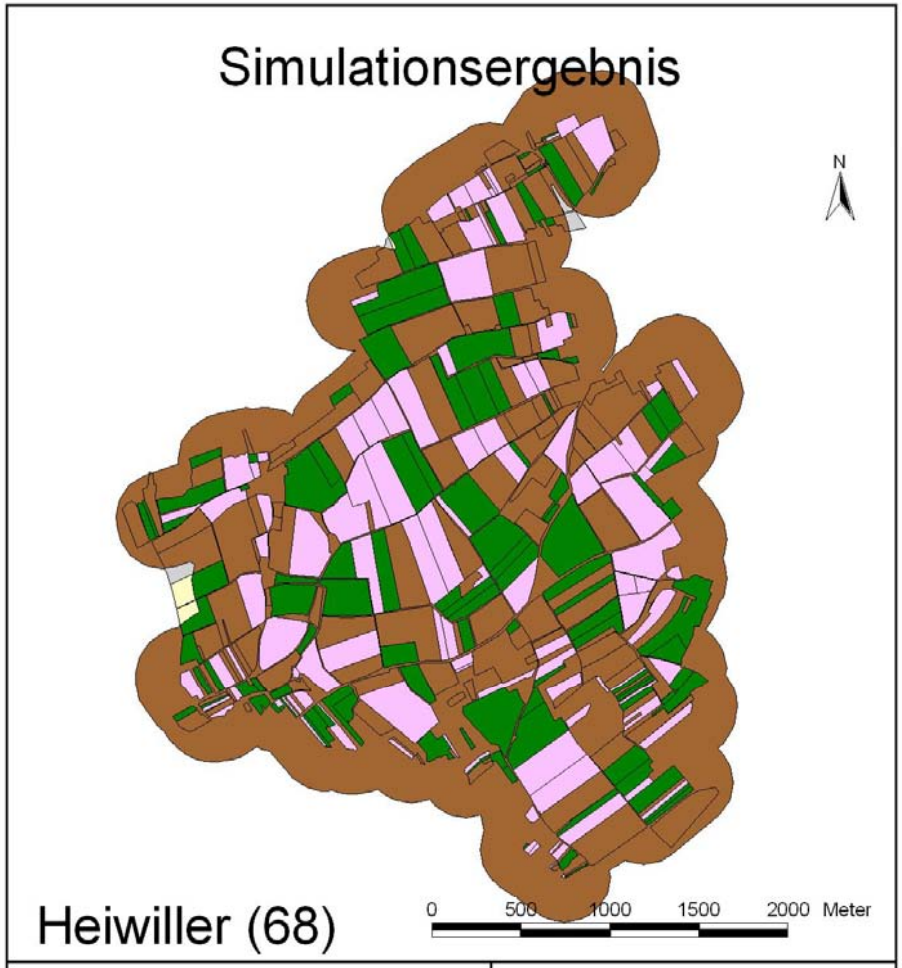
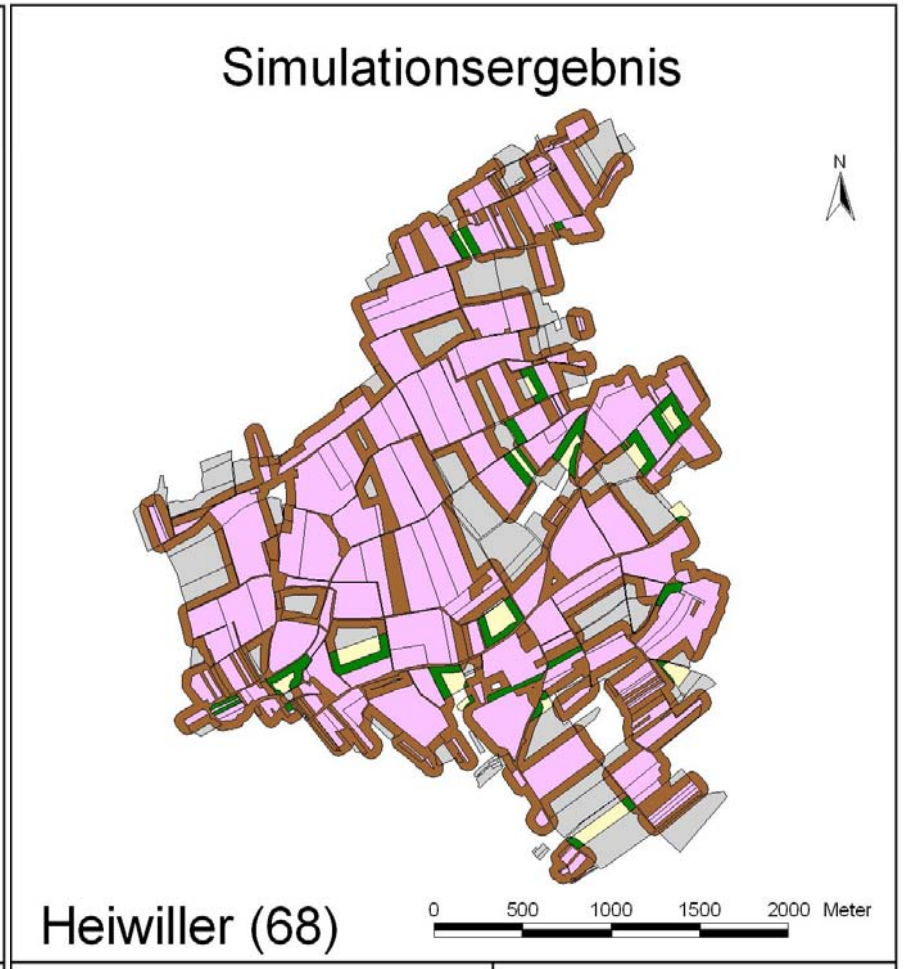
Results





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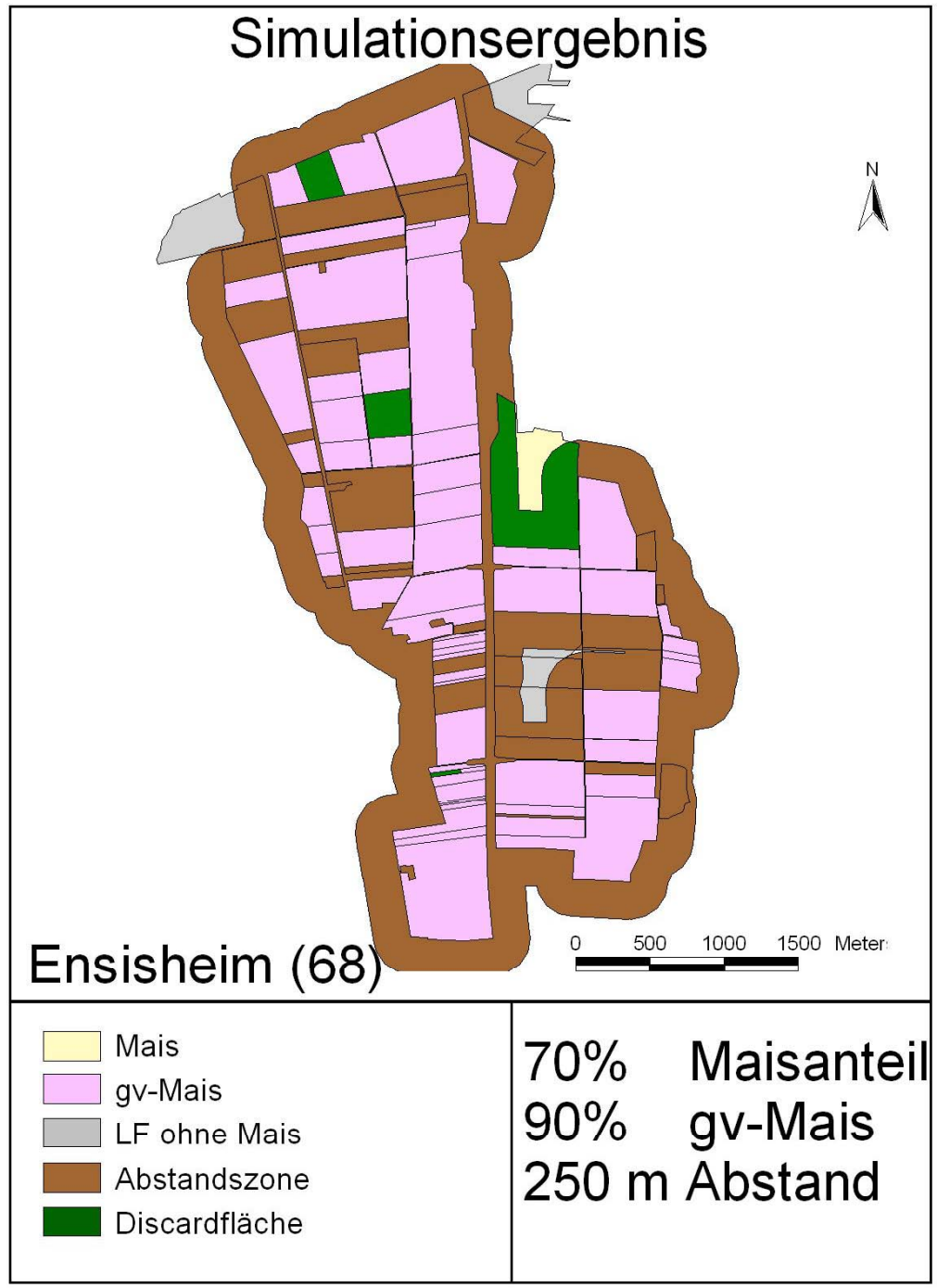
Results



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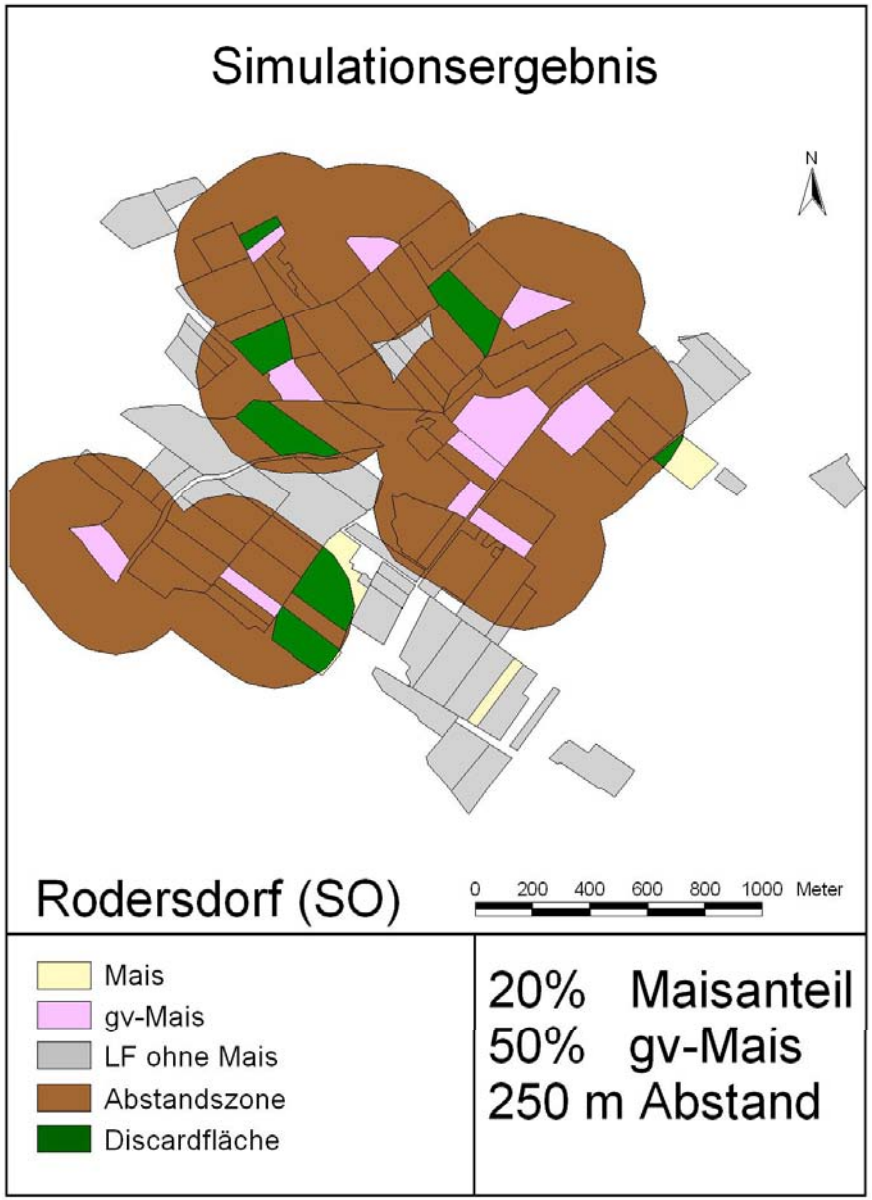
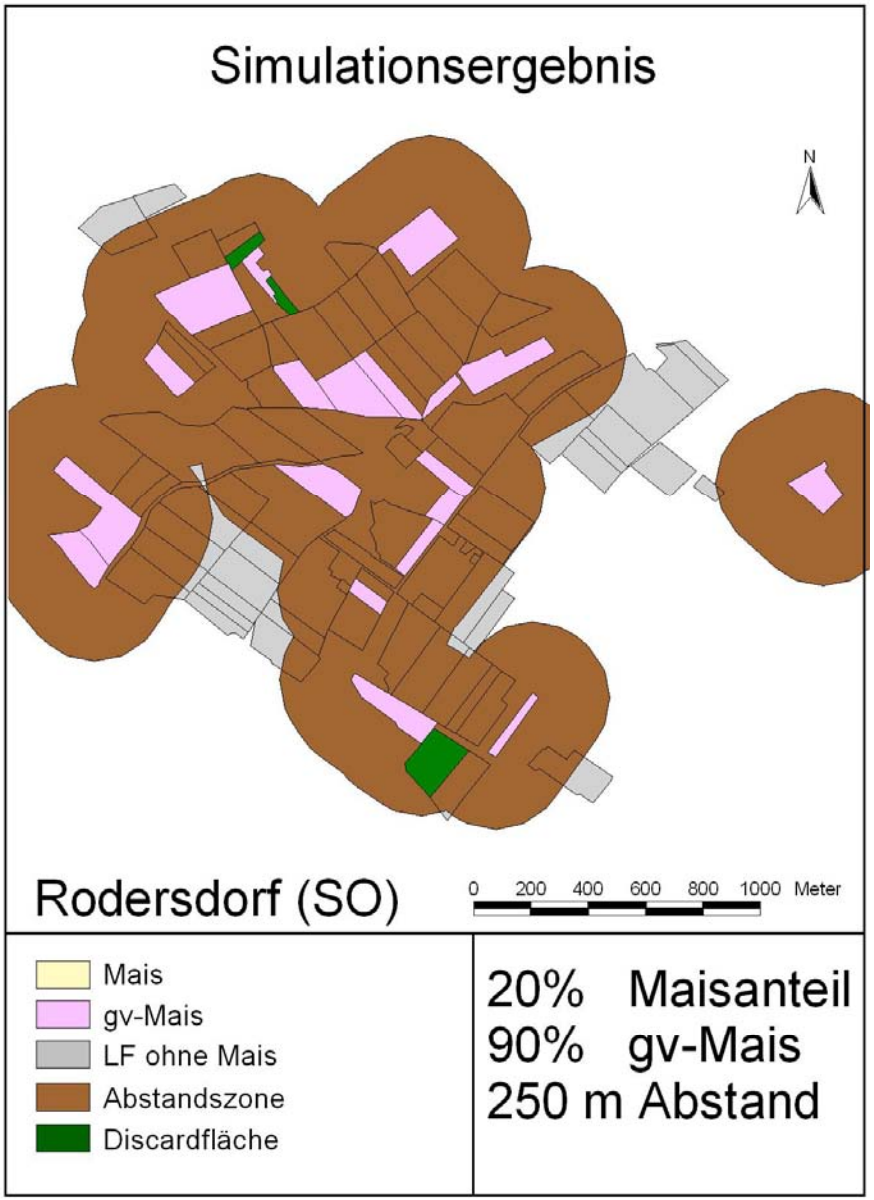
Diskussion

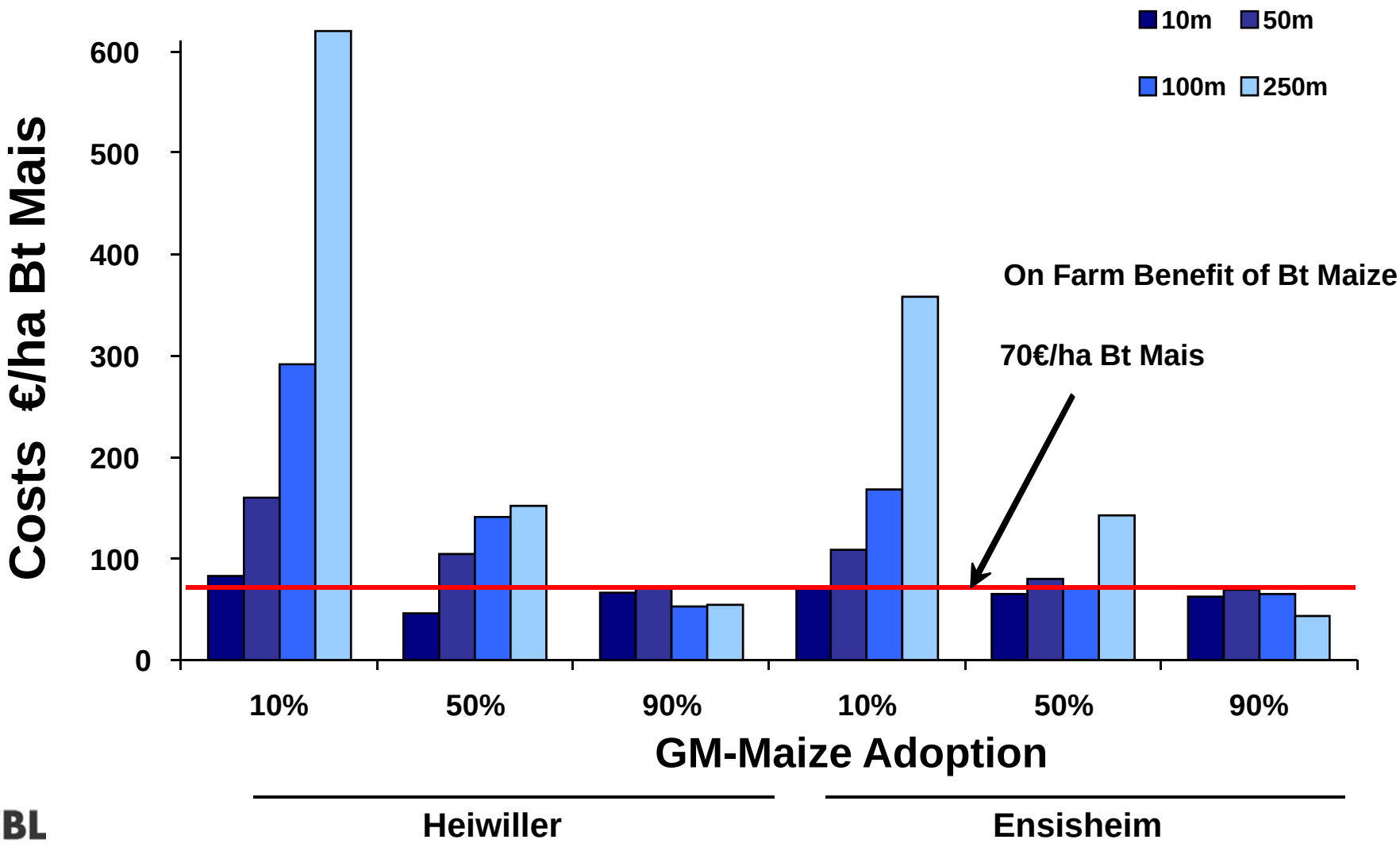
Spacial Analysis: Rodersdorf





Results

Cost for the GM Farmer



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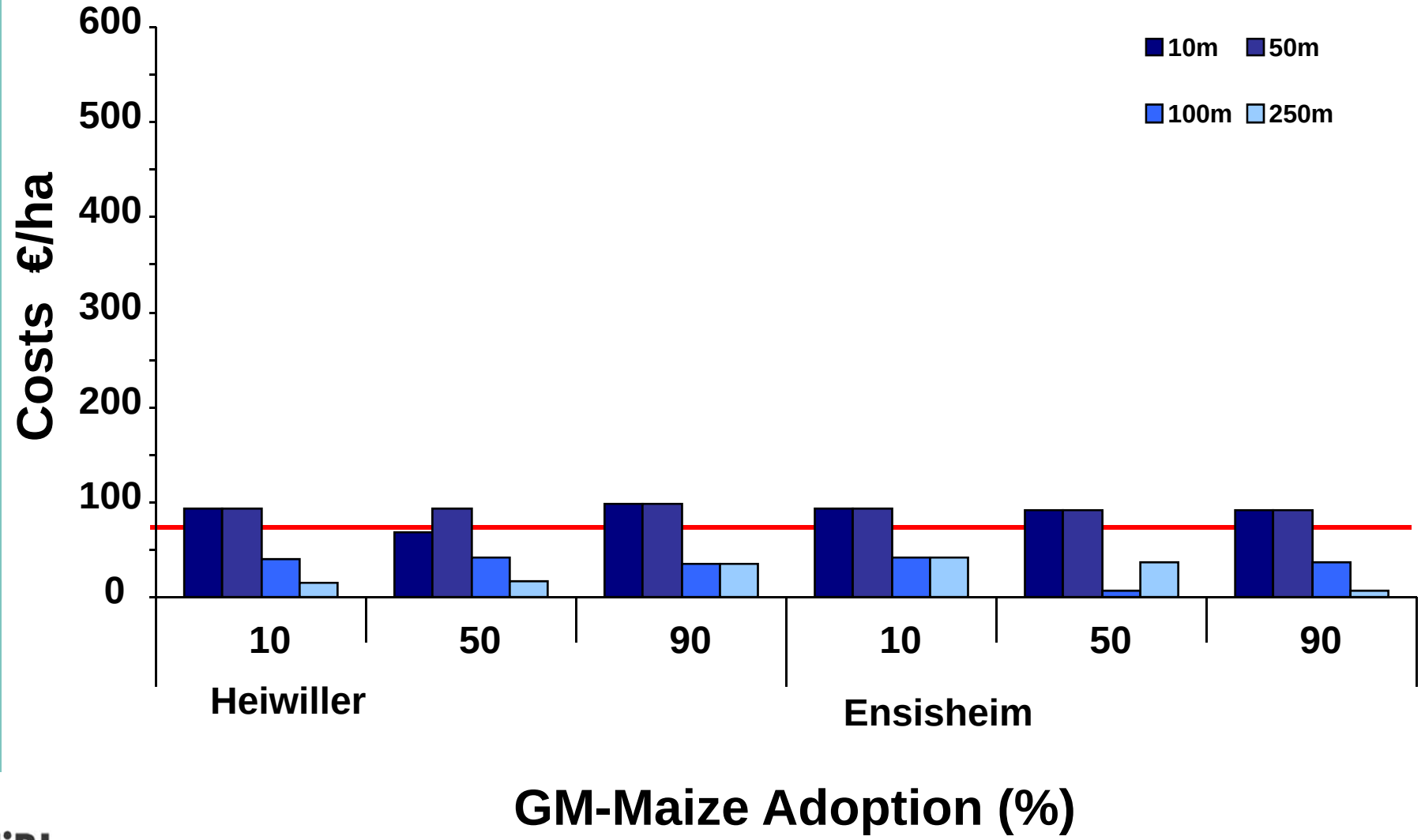
Results

Costs for the non-GM Farmers if he gets a compensation



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Results

- Benefit of GM Maize production (70€/ha) does not cover the cost of coexistence
- Bt Maize production brings a benefit for the farmer with 90% GM maize adoption and short isolation distances of 10 m and 50 m
- Bt Maize production causes additional costs for non-GM producer
  - Additional isolation distances and GMO Testing
  - Purchase of pure seed
  - Cost for machinery
- Large isolation distances reduce costs for non-GM Maize producer
- But coexistence with large isolation distances could lead to a situation, where non GM Maize production disappears

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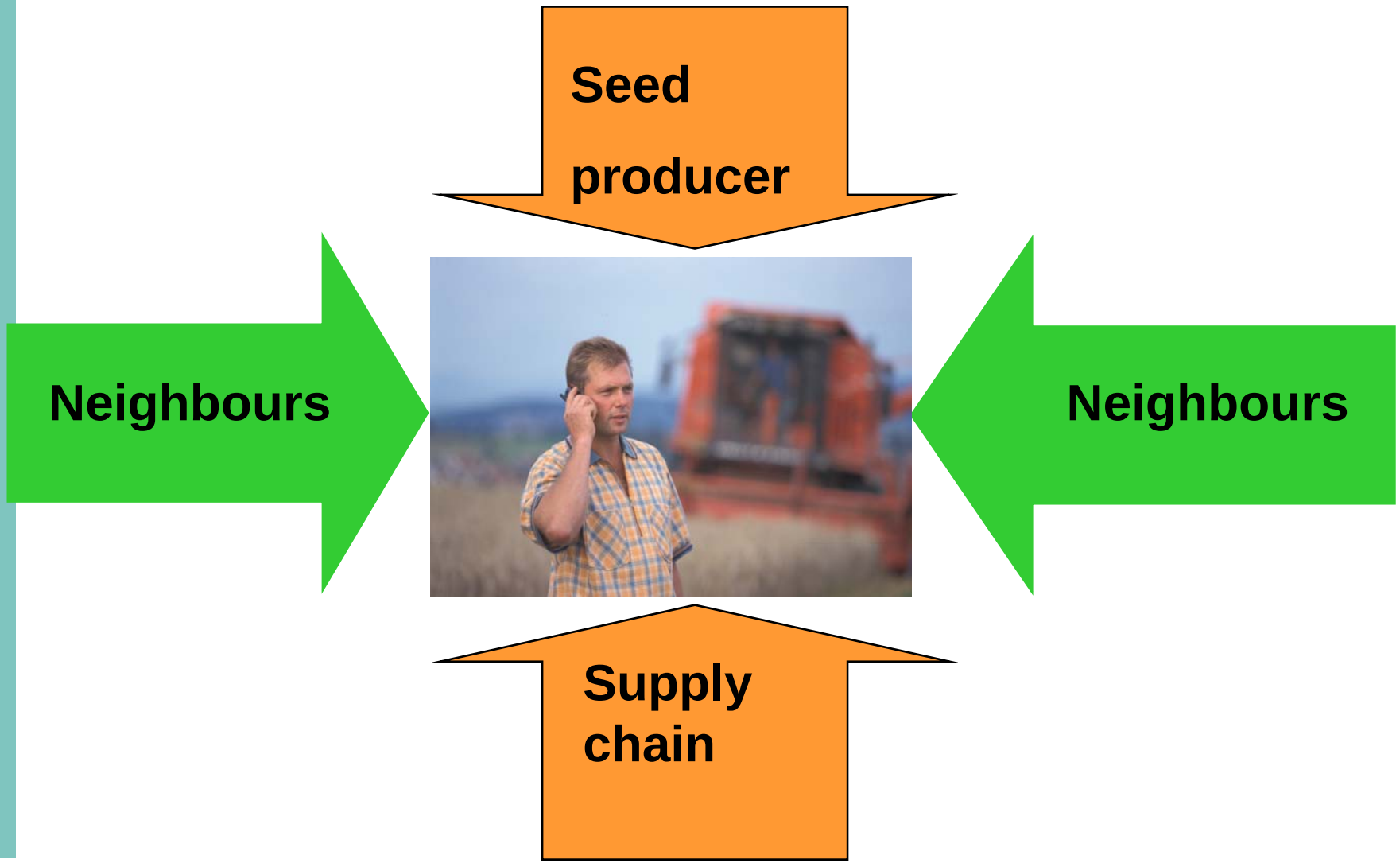
Coexistence: Producers view



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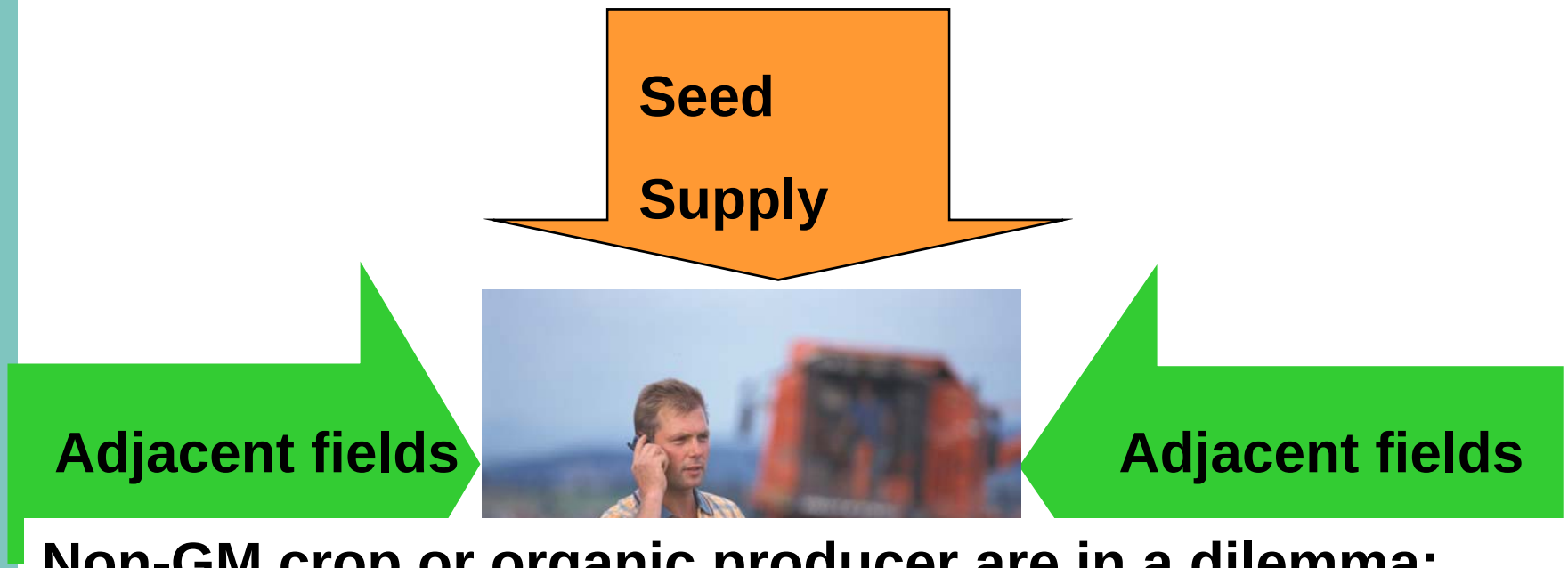
Coexistence: Producers View



Non-GM crop or organic producer are in a dilemma:

- >Large isolation distances reduce costs of non-GM crop production
- >Large isolation distances decrease the area, where non-GM crop production is possible

Results

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Tank you for your attention!

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Methode

Input Kostenmodell

Lohnarbeiten Aussaat	0%
Lohnarbeit Ernte	100%
Kapazität Maschinen	200 ha/Jahr
Kapazität Silos	250 t
Durchschnittliche Erträge	9.7 t/ha
Arbeitskosten Mitarbeiter	8.05 €/ha
Kosten Insektizide	17.5 €/ha
Mehrertrag durch Bt Mais	5%
Kosten Analytik	188.7 €/pro Probe
Saatgutkosten Bt Mais	29.9€/ha1
Price Premium nicht gv-Mais	10%
Kosten nicht gv-Mais Saatgut	4.9 €

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Koexistenz: Massnahmen für Betriebe

- Beschaffung von Saatgut
- Absprache mit den Nachbarn
- Absprache entlang Supply Chain
- Information über GVO Aussaat an Behörde
- Festlegen der Sicherheitsabstände
- Kontrolle der Erntegüter
- Konfliktfall lösen
- Versicherungen

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Ergebnisse der Untersuchungen aus dem Elsass

- Der Anbau von gv-Mais erhöht die Kosten für die nicht-gv Mais Produzenten zwischen 7.1€/ha bis 98.3€/ha
  - Annahme: der Landwirt für 100% seiner Ernte den erwünschen Preis erzielen kann.
- Zusatzkosten entstehen durch höhere Saatgutkosten, Erntekosten, Kontrollen der Erntegüter und Absprachen
- Die Zusatzkosten sind geringer, wenn grosse Isolationsdistanzen eingehalten werden müssen
- Die Zusatzkosten müssen mit einem Preispremium kompensiert werden, das je nach Szenario zwischen 1.5% und 8.6% liegt
- Fällt diese Kompensation weg steigen die Kosten

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Diskussion

Räumlichen Analyse: Rodersdorf