

An incentive based tool for ecologically and economically efficient provision of agrobiodiversity

Elke Bertke

Rainer Marggraf

Department of Agricultural Economics
- Environmental and Resource Economics -
Georg-August-University of Göttingen
Germany



Outline

1. Introduction
2. A new payment scheme for environmental services of agriculture
 - Project region
 - Ecological goods
 - Supply and demand
 - Tendering procedure
3. Case study in the district of Northeim
4. Integration into the EU policy regime
5. Conclusion



Introduction

Introduction

Outcome-based payment scheme

- Project region
- Ecological goods
- Supply and demand
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

Conclusions

Agriculture

Joint production:

Market goods +

non-market environmental goods



Public funds are allocated:

e.g. agri-environmental programmes
(co-financed by the European Union and the Member States)



Introduction

Outcome-based
payment scheme

- Project region
- Ecological goods
- Supply and demand
- Tendering procedure

Case study in the
district of Northeim

Integration into
the EU policy
regime

Conclusions

Introduction

Criticism directed against most of the existing agri-environmental programmes in the EU

- Missing innovation incentives for farmers due to action-orientation
- Missing efficiency in resource allocation
- Missing transparency in the demand for ecological goods and services
- Centralisation and action-orientation lead to the formulation of targets which are not adjusted to the specifics of a region



Introduction

**Outcome-based
payment
scheme**

- Project region
- Ecological goods
- Supply and demand
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

Conclusions



A new payment scheme for environmental services of agriculture

Central aims

- Improving ecological and economic efficiency
- Increasing the acceptance of agri-environmental programmes among farmers and the public



Creating a market for ecological goods



Introduction

**Outcome-based
payment
scheme**

- Project region
- Ecological goods
- Supply and demand
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

Conclusions

A new payment scheme for environmental services of agriculture

Distinctions from current agri-environmental programmes

1. Outcome-based reward system for ecological services
2. The system contains components of the free market economy: supply and demand
3. Regional payment scheme – (model region: the administrative district Northeim)
4. Decentralised decisions made by a Local Advisory Board, backed up by public vote



District of Northeim

Introduction

Outcome-based payment scheme

- Project region

- Ecological goods

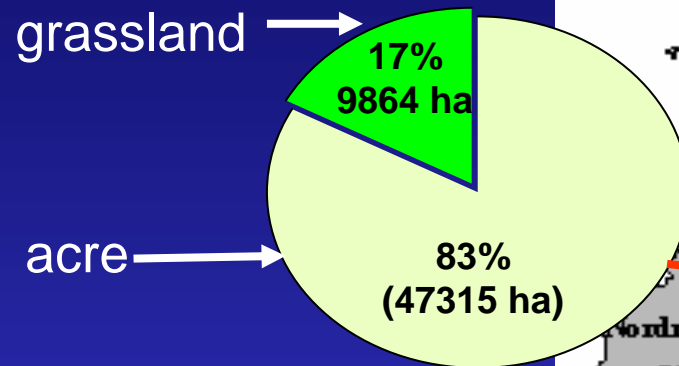
- Supply and demand

- Tendering procedure

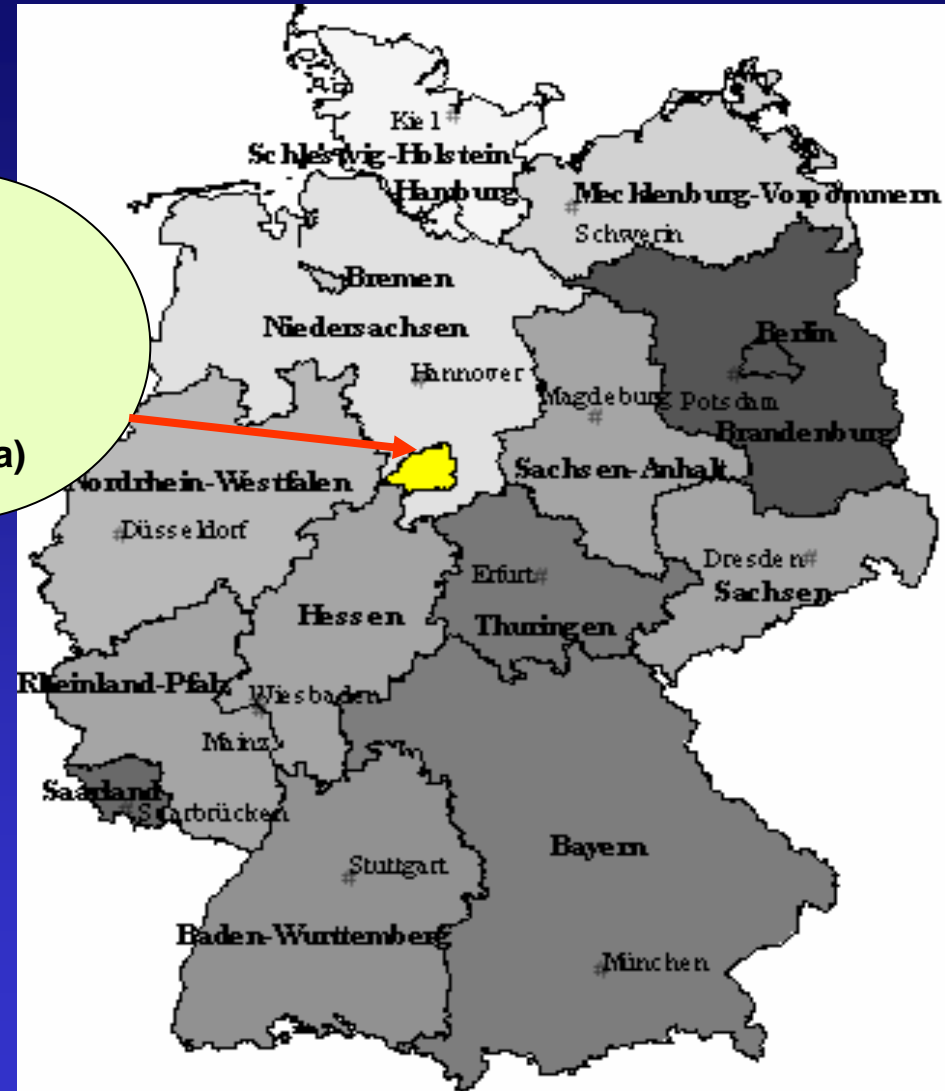
Case study in the district of Northeim

Integration into the EU policy regime

Conclusions



- central Germany
- rural area
- 150,000 inhabitants
- 57.362 ha AL



District of Northeim

Introduction

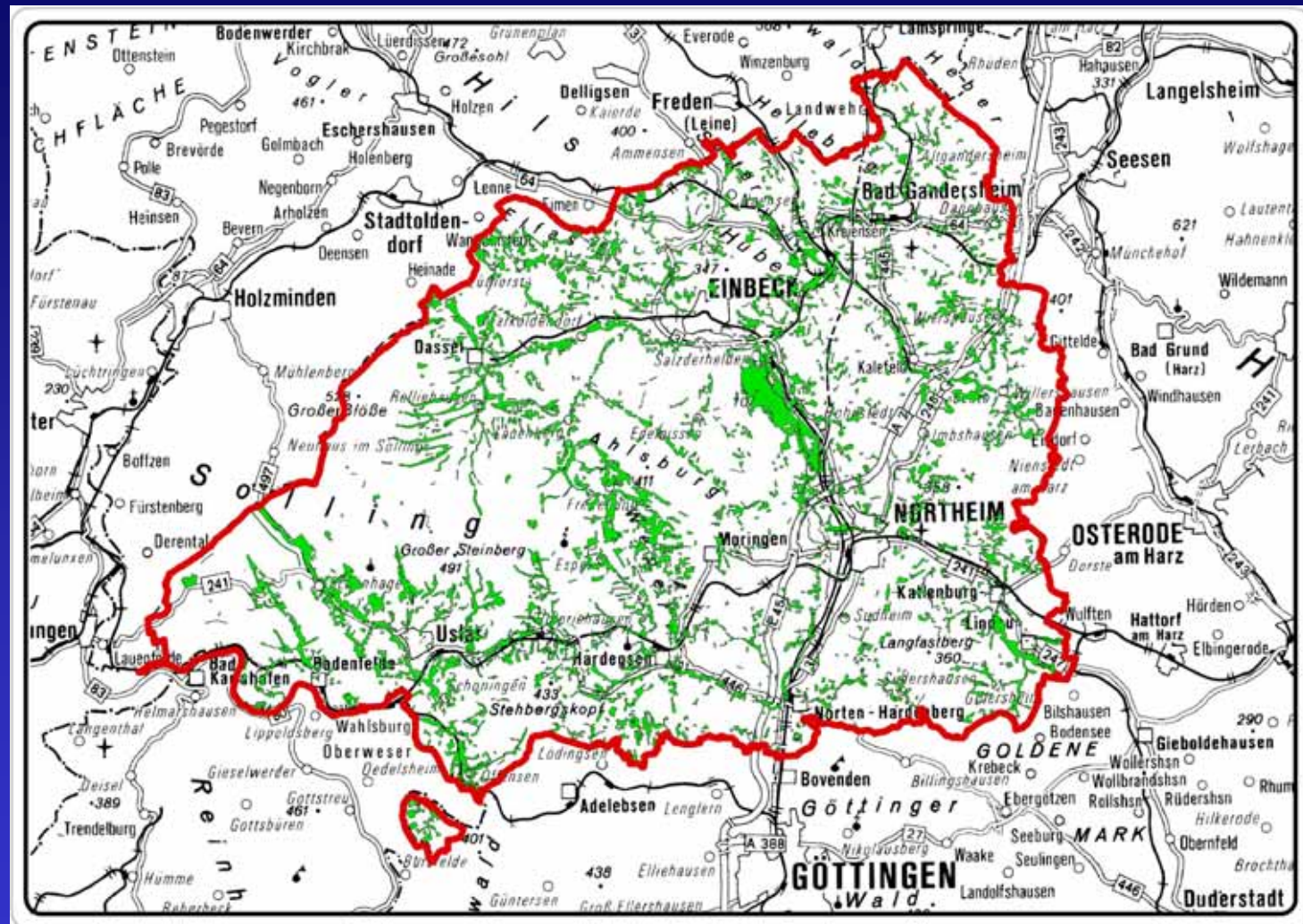
Outcome-based payment scheme

- Project region
- Ecological goods
- Supply and demand
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

Conclusions



■ grassland



District of Northeim

Forest meadows in the Solling hills

Introduction

Outcome-based payment scheme

- Project region
- Ecological goods
- Supply and demand
- Tendering procedure

Case study in the
district of Northeim

Integration into
the EU policy
regime

Conclusions



photos: A. Fischer



Ecological goods

Introduction

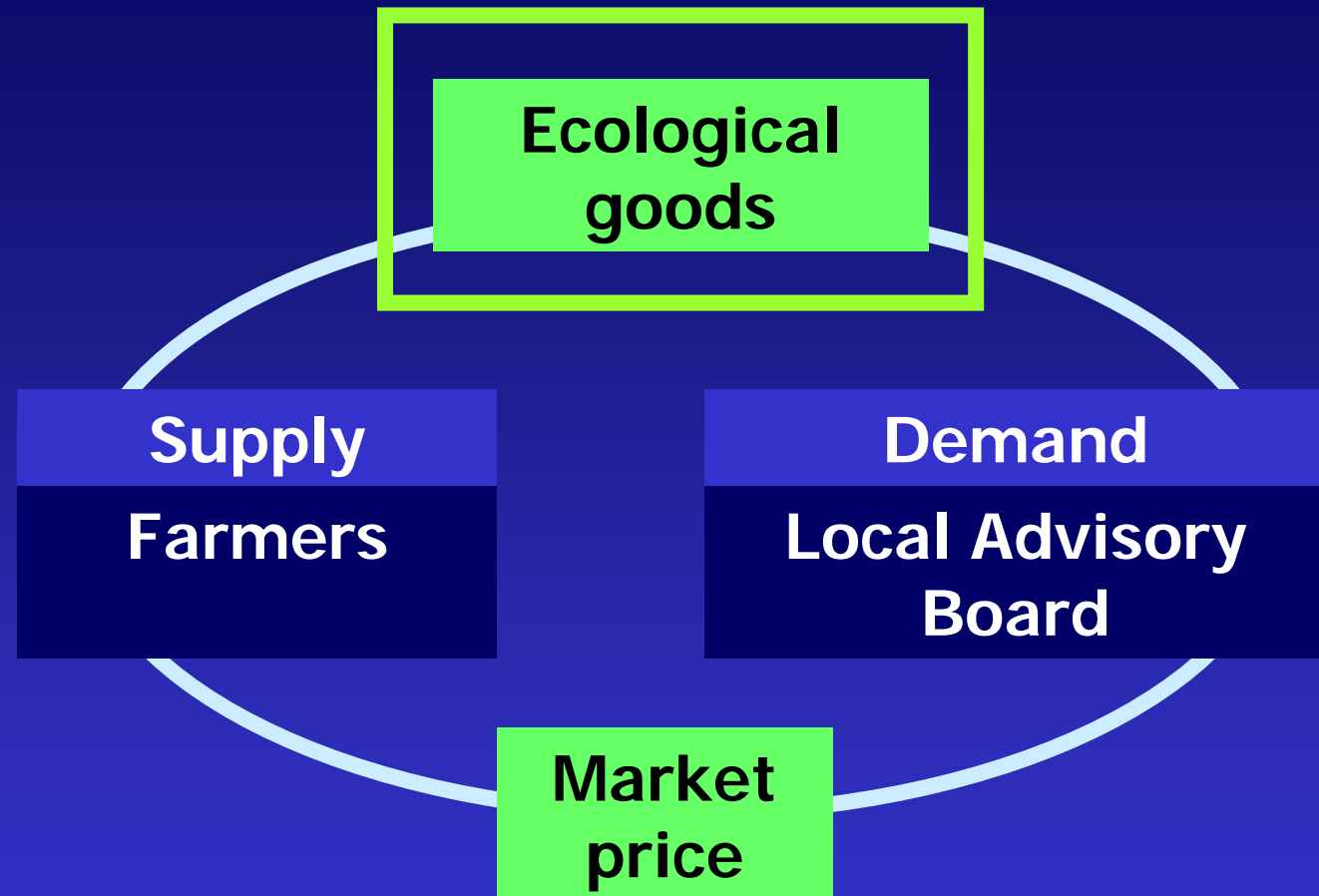
Outcome-based payment scheme

- Project region
- **Ecological goods**
- Supply and demand
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

Conclusions



Introduction

Outcome-based payment scheme

- Project region
- **Ecological goods**
- Supply and demand
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

Conclusions

What are ecological goods?

- Results of ecological services performed by farmers
- Goods of botanical diversity could be used as an indicator of biodiversity
- Ecological goods are public goods

Arable land



Grassland



Landscape features



Types of goods



Introduction

**Outcome-based
payment
scheme**

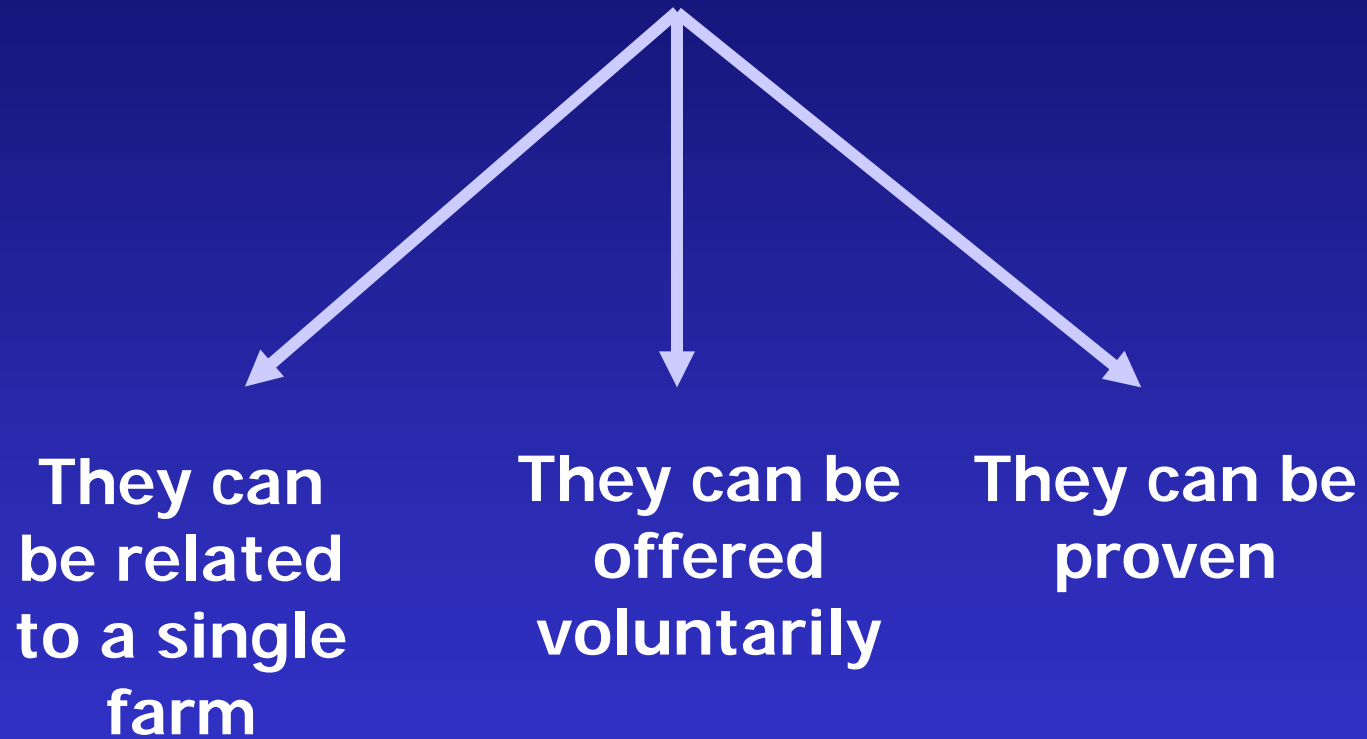
- Project region
- **Ecological goods**
- Supply and demand
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

Conclusions

Why did we choose ecological goods of plant diversity ?



**Outcome-based
payment
scheme**

- Project region

**• Ecological
goods**

- Supply and demand
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

Preconditions of ecological goods

→ The production of ecological goods should require more adaptations than those of good farming practice

➡ **Association of the criteria of the goods with the field management is necessary**

→ The goods should be adjusted to regional conditions

➡ **The goods have to be defined on the basis of regional investigations**

→ The goods should create positive external effects on the fauna and abiotic resources



Introduction

**Outcome-based
payment
scheme**

- Project region
- **Ecological
goods**
- Supply and
demand
- Tendering
procedure

Case study in the
district of Northeim

Integration into
the EU policy
regime

Conclusions

Ecological goods "grassland"

Objectives of the production of ecological goods "grassland" in the Northeim district

- preservation of grassland management particularly on marginal sites
- promotion of species-rich grassland and the protection of regionally endangered plant communities



Introduction

**Outcome-based
payment
scheme**

- Project region
- **Ecological goods**
- Supply and demand
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

Conclusions

Method for defining the goods

Criteria of the goods

1. number of forb species per unit area

2. catalogue of plant species

Definition of three classifications of the ecological goods “grassland”



Introduction

Outcome-based payment scheme

- Project region
- **Ecological goods**
- Supply and demand
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

Conclusions

Ecological goods "grassland"

Ecological good I: forb species number: $\geq 8/12,6\text{m}^2$

Ecological good II: forb species number: $\geq 8/12,6\text{m}^2 + 2$ species of a catalogue with species of extensively used regional grassland types per plot ($=12,6\text{m}^2$)

Ecological good III: forb species number: $\geq 8/12,6\text{m}^2 + 2$ species of a catalogue with species of extensively used regional grassland types per plot ($=12,6\text{m}^2$) + $\geq 50\%$ of the plots contain
A: 4 species of the catalogue
or
B: 2 species of the catalogue, which are characteristics of regionally endangered plant communities



Controlling the ecological goods

Introduction

Outcome-based payment scheme

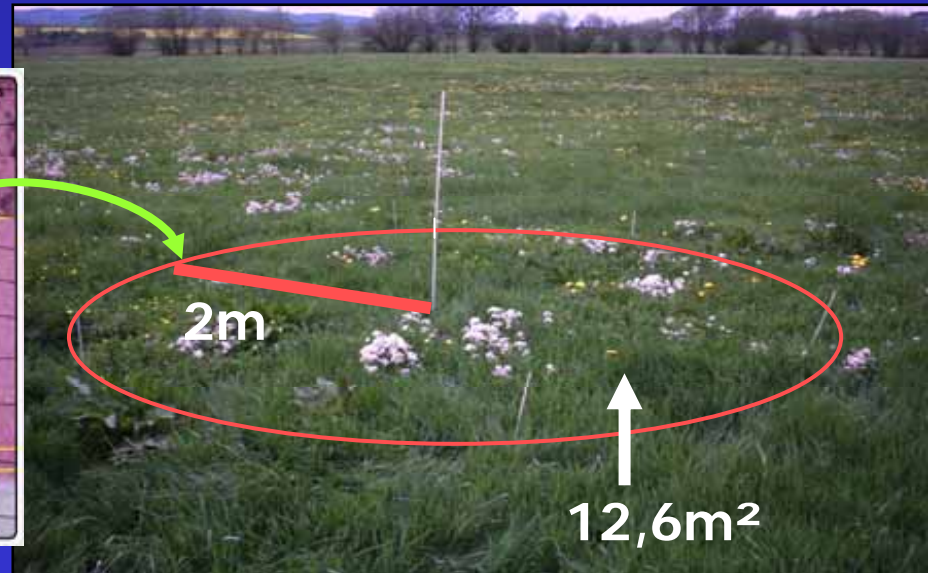
- Project region
- **Ecological goods**
- Supply and demand
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

Conclusions

- Qualification as ecological good is achieved when the criteria of the goods are fulfilled on the entire grassland field.
- Standardised methods for the determination and the control of such goods have been developed:
 - The criteria of the goods have to be fulfilled in a defined number of plots (=12,6m²).
 - The number of plots depends on the size of the grassland field.



Supply and Demand

Introduction

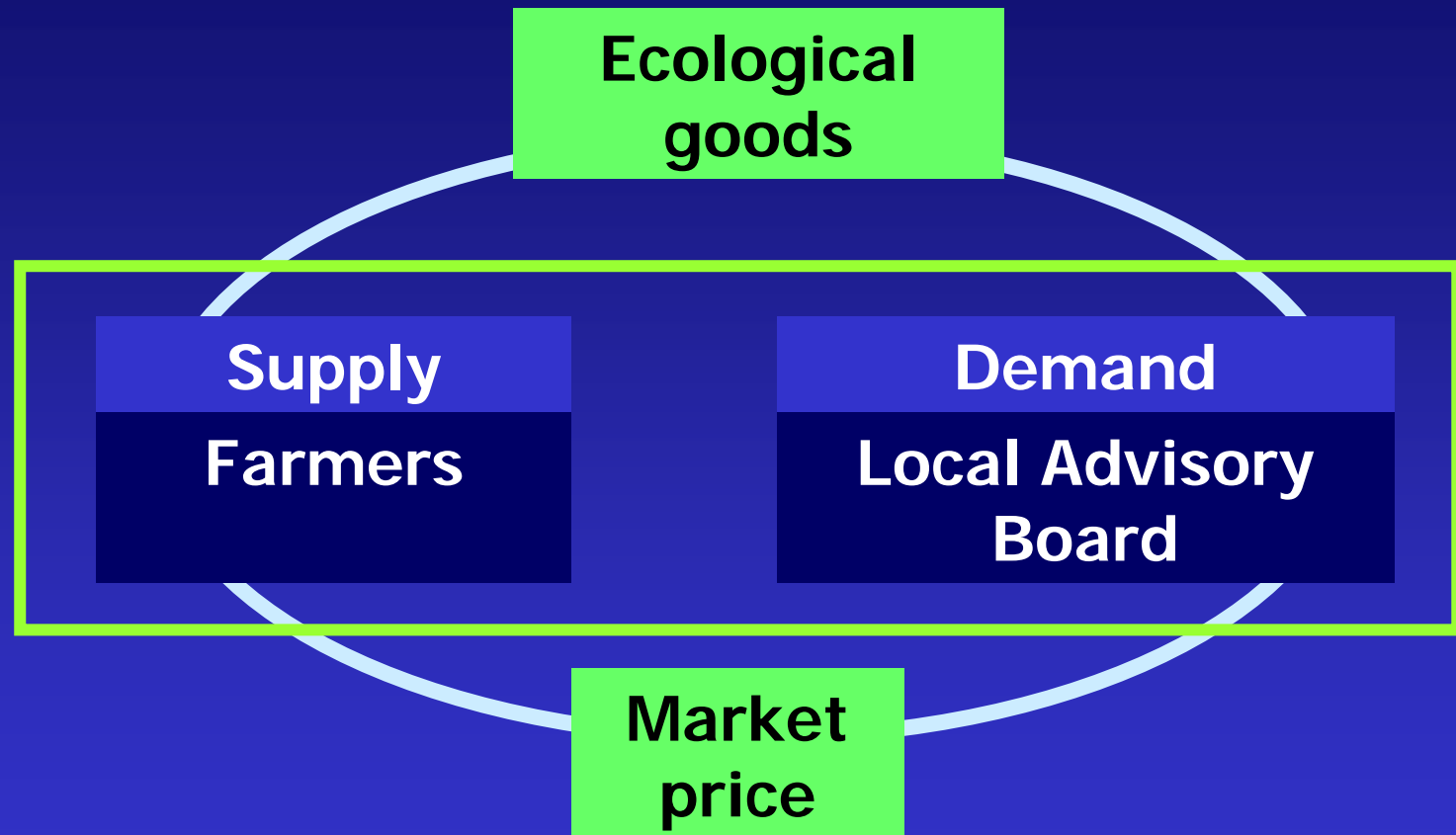
Outcome-based payment scheme

- Project region
- Ecological goods
- **Supply and demand**
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

Conclusions



Supply

Introduction

Outcome-based payment scheme

- Project region
- Ecological goods
- **Supply and demand**
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

Conclusions

- Farmers supply ecological goods voluntarily.
- There are no regulations on the production of the goods: Thus self-reliant and innovative solutions for producing the goods will be stimulated.
- Farmers themselves calculate the prices based on the farming conditions, production costs etc.



Demand

Introduction

Outcome-based payment scheme

- Project region
- Ecological goods

• Supply and demand

- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

Conclusions

A **Regional Advisory Board** represents the interests in a certain region:

Tasks

- Allocation of the given budget to specific ecological goods to express the demand (majority decisions)
- The preferences of the local population for ecological goods will be taken into account

Stakeholder

- Local Affairs
- Environmental agency
- Agricultural administration
- Pressure groups



European principle of subsidiarity



Tendering procedure

Introduction

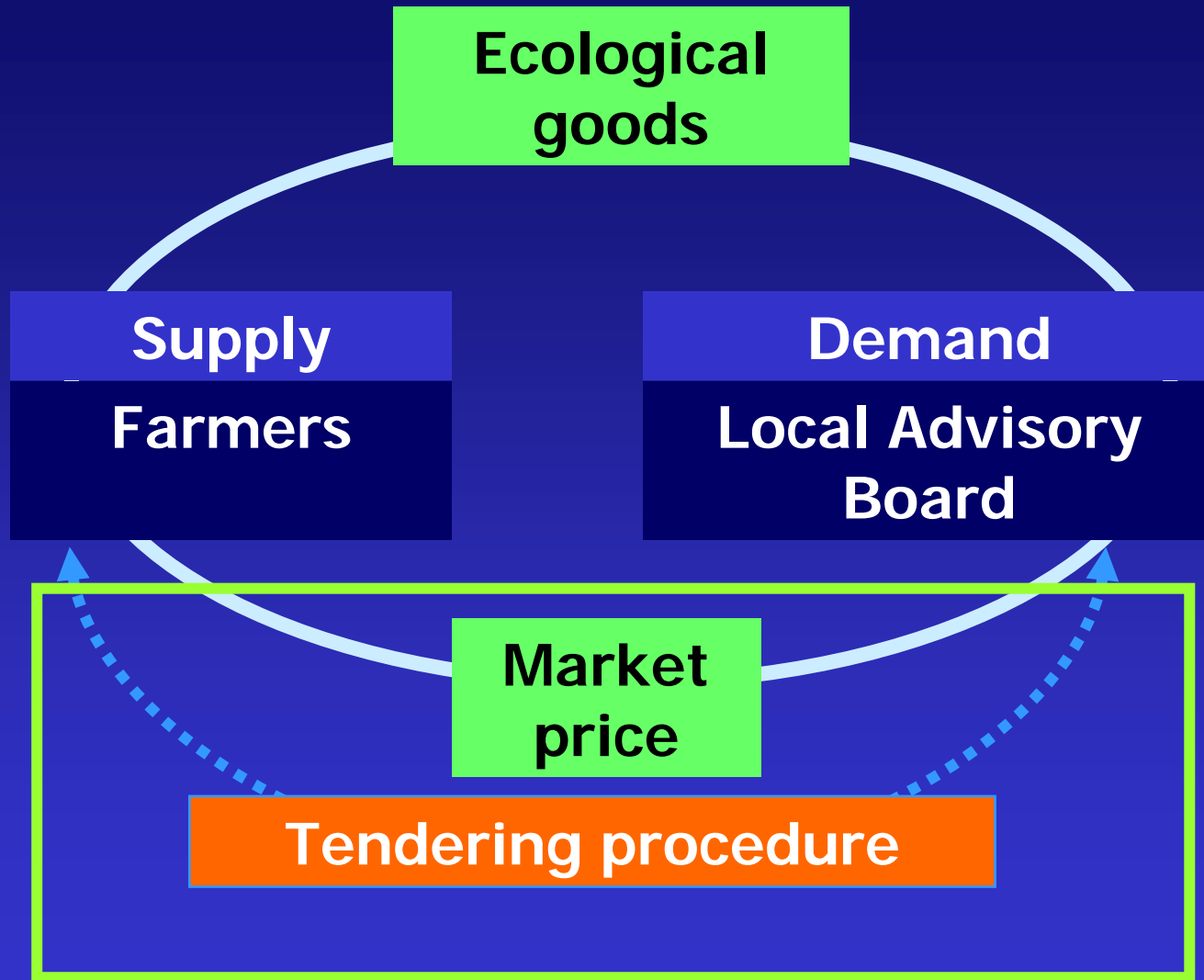
Outcome-based payment scheme

- Project region
- Ecological goods
- Supply and demand
- **Tendering procedure**

Case study in the district of Northeim

Integration into the EU policy regime

Conclusions



Tendering procedure

EU + Member State:
public fund

Local Advisory
Board

Decision about
the demand:
catalogue of
ecological
goods

tender ecological goods

invitation to bid

farmers

administrating
authority



accept bids based on the
price

Introduction

Outcome-based
payment scheme

- Project region
- Ecological goods
- Supply and demand
- **Tendering procedure**

Case study in the
district of Northeim

Integration into
the EU policy
regime

Conclusions



Case study in the district of Northeim

private fund:
30.000€

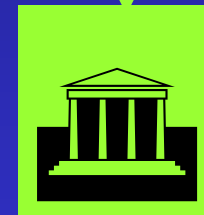


Local Advisory Board

Decision about the demand:
catalogue of ecological goods

farmers

university



bids

accepting bids

Introduction

Outcome-based payment scheme

- Project region
- Ecological goods
- Supply and demand
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

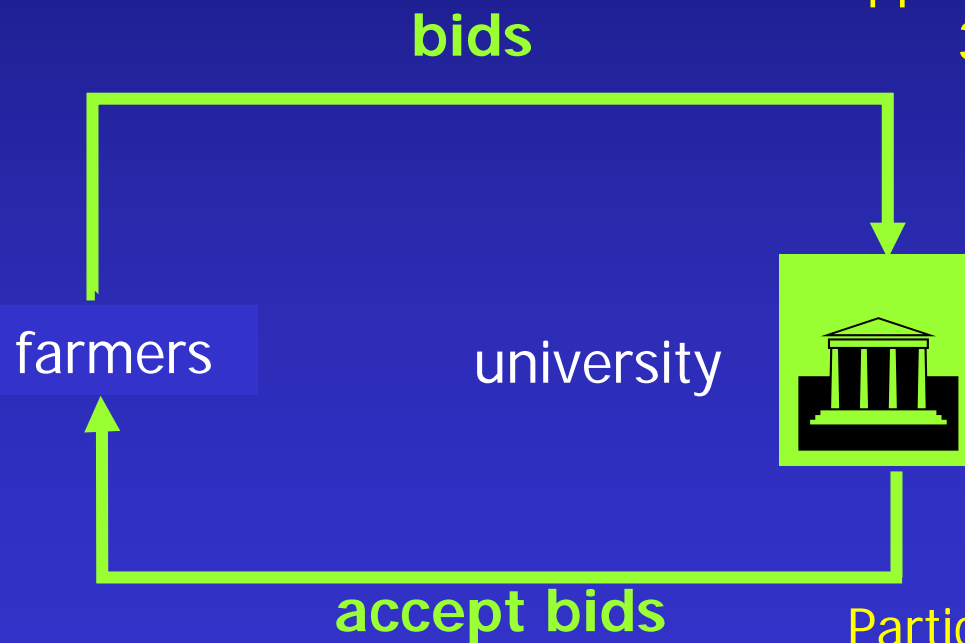
Conclusions



Case study in the district of Northeim

Results of the tendering procedure [2004/2005] for ecological goods „grassland“:

Suppliers of ecological goods:
38 farmers (199 offers)



Participants of the program
28 farmers (159 offers)

Introduction

Outcome-based payment scheme

- Project region
- Ecological goods
- Supply and demand
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

Conclusions



Case study in the district of Northeim

Introduction

Outcome-based payment scheme

- Project region
- Ecological goods
- Supply and demand
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

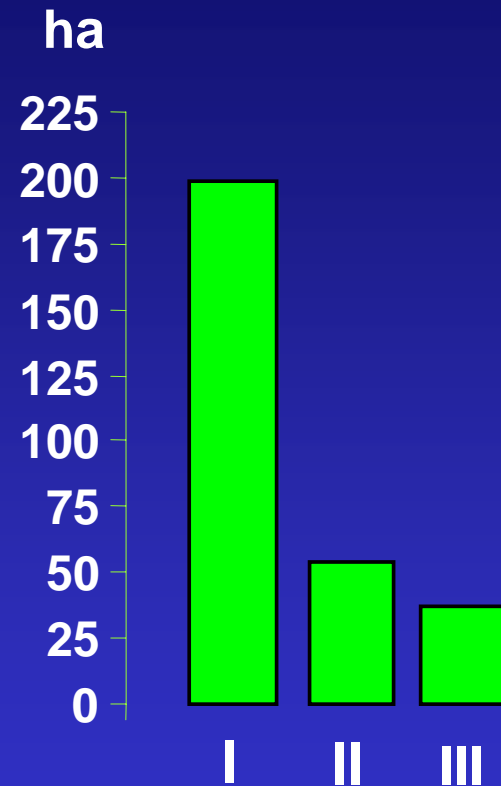
Conclusions

ecological good I: 109
grassland fields

ecological good II: 32
grassland fields

ecological good III: 18
grassland fields

ecological goods „grassland“
were produced on 288 ha



Integration into the EU policy regime

1. Convention on Biological Diversity

Introduction

Outcome-based payment scheme

- Project region
- Ecological goods
- Supply and demand
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

Conclusions

article 6a, article 10: conservation and sustainable use of biological diversity + biological resources in national decision-making

article 8: In-situ conservation of biological diversity

article 11: incentives for the conservation and sustainable use of components of biological diversity



Introduction

Outcome-based
payment scheme

- Project region
- Ecological goods
- Supply and demand
- Tendering procedure

Case study in the
district of Northeim

**Integration
into the EU
policy regime**

Conclusions

Integration into the EU policy regime

2. Agenda 21

PREAMBLE

1.3. „Agenda 21 addresses the pressing problems of today and also aims at preparing the world for the challenges of the next century. (...) The broadest public participation and the active involvement of the non-governmental organizations and other groups should also be encouraged.“



Introduction

Outcome-based
payment scheme

- Project region
- Ecological goods
- Supply and demand
- Tendering procedure

Case study in the
district of Northeim

**Integration
into the EU
policy regime**

Conclusions

Integration into the EU policy regime

3. Proposal for a COUNCIL REGULATION on support for rural development by the European Agricultural Fund for Rural Development (EAFRD), KOM (2004) 490

Article 37 Agri-environment and animal welfare payment

4 "Where appropriate, the beneficiaries are selected on the basis of calls for tender, applying criteria of economic, environmental and animal welfare efficiency."



Conclusions

Introduction

Outcome-based payment scheme

- Project region
- Ecological goods
- Supply and demand
- Tendering procedure

Case study in the district of Northeim

Integration into the EU policy regime

Conclusions

This payment scheme provides the framework of a long term perspective for sustainable agriculture

Criteria leading to higher efficiency of allocating public funds:

- Outcome-based remuneration
- Regional organisation
- Adaption of the goods to regional particularities
- Tendering procedure (Competition)

Criteria leading to an improvement of acceptance:

- Decentralised decision making
- Production of goods according to market demand
- Consideration of the local population's preferences

The payment scheme can strengthen the multifunctionality of agriculture.

