Integrating IOI matrix and modelling for the design of agro-environmental policy measures

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OUTLINE

- Introduction
- Methodology
- Further remarks on the IOI matrix
- Selected outcomes
- Lessons learnt
- Key takeaways
- References

***NB**. At the time of preparing this presentation, the case study is not complete yet. The next step is to bring AGMEMOD into the equation.*

Two scenarios will be modelled looking at the different world market price developments…

Purpose: By the end of the session, participants will have a better overview of how the IOI Matrix and the joint 'Eco-scheme-farm income model' model have been applied in the Netherlands.

INTRODUCTION

Key aspects of the Dutch case study

- **Objective**
  - To test integrated use of tools to support prioritising, designing, and monitoring eco-schemes in the Netherlands

- **Policy question**
  - What are the effects of different options for the design and the hectare payments of the planned eco-schemes on the expected uptake and the required budget?
  - Possible options: alternative specifications regarding the eligibility of fallow land as a crop, options to promote low-input grassland management, etc.
  - Focus: Dairy farms

- **Approach**
  - A variety of methods for contributing to the various phases of the policy-making cycle
    - **IOI matrix**: Needs assessment / Intervention setting
    - **Joint eco-scheme-farm income model**: Ex-ante analyses / Financial allocations
    - **Policy Monitoring Tool**: Performance monitoring and support to evaluation

NB. For reference, the Policy Monitoring tool is mentioned. It is not discussed due to a time constraint but details on the tool will be available in the upcoming project deliverable.

METHODOLOGY

IOI Matrix / Eco-scheme-farm income model / Policy Monitoring Tool

- **IOI matrix** (qualitative)
  - It facilitates evidence-based decision-making because it links instruments to objectives and impacts
  - It includes data on key challenges, instruments, and their impacts

- **Joint Eco-scheme-farm income model** (quantitative)
  - The eco-scheme simulator tool has been integrated into FARMDYN – a new module including selected eco-scheme measures has been added
  - Next: sectoral impacts delivered by AGMEMOD will be translated into farm impacts by linking both models

- **Policy Monitoring Tool** (qualitative)
  - (Gap) Analysis focusing on eco-indicators, including in the current monitoring scheme and future potential of improvement

Further details on the **FARMDYN** model are available at: https://www.ilr1.uni-bonn.de/en/research/research-groups/economic-modeling-of-agricultural-systems/farmdyn.

FURTHER REMARKS ON THE IOI MATRIX (I)

How does it look?

The instruments are in the columns

The objectives are in the rows

The (qualitative) impacts are in the cells

Table I *Overview of the key challenges identified and the CAP intervention address them from a perspective of effectiveness and cost effectiveness (green challenges eventually found to have a lower priority (grey fields).*

	Specific objective	Key challenge	Basic income support (Art. 17,18)	Conditionality (Art. 11, 12)	Differentiation of basic income support (Art. 18.2)	Complementary redistributive payments (Art. 26)	Income support to young farmers (Art. 27)	Coupled support (Art. 29-32)	Sectoral support (Art. 39-63)	Eco-schemes (Art. 28)	AECM (Art. 65)	Areas with natural handi (Art. 66)	Areas with specific restrict WFD, BHD (Art. 67)	Investment support (Art. 68)	Start-up support new entrants (Art. 69)	Risk management (Art. 70)	Cooperation (Art. 71)	AKIS (Art. 72)
a	Income support	1. Fair income																
		2. Risk management																
		3. Resilience																
		4. Investments																
b	Competitiveness	5. Entrepreneurship																
		6. Sustainable production																
		7. Transparancy																
c	Position in chain	8. Cooperation in chain																
		9. Short chains																
d	Climate	10. Animal husbandry																
		11. Peat meadow areas																
		12. CO_2 soil																
		13. CO2 trees/L.E.																
		14. Climate adaptation																
		15. Water management																
e	Environment	16. Nitrogen																
		17. Nutriënts																
		18. Pesticides																
		19. Soil quality																
f	Biodiversity	20. Species/habitats																
		21. Landscape / E.S.																
G	Young farmers	22. Young farmers																
h	Rural development	23. Bio-economy																
		24. Cultural landscape																
		25. Social cohesion																
		26. Image																
i	Societal concerns	27. Animal welfare																
		28. Residuals																
		29. Alternative farming																
	Knowledge, innovation	30. AKIS																

Source: Baayen et al, 2021.

FURTHER REMARKS ON THE IOI MATRIX (II)

Pros and Cons

Advantages	Disadvantages
• Instrument that can facilitate the process of policy making • It takes into account the multiplicity of objectives and instruments • It can help to detect incoherences at an early stage • It helps to think in terms of policy packages rather than individual measures	• It misses quantitative information: points only to 'directions' • It does not provide info on the degree of expected impacts • It lacks info on availability and use of budgets (no budget constraint) • As every tool, it can be abused by stakeholders for their own interest

SELECTED OUTCOMES

Some insights

IOI Matrix

- **29 Instruments included**: Contribution from the market / Subsidies for productive investments / Subsidies for non-productive investments / Payments for ecosystem services / Land instruments / Knowledge and innovation instruments / Others
- **Pathways:** Innovation; Extensification (Nature-inclusive/Organic/Nature-friendly); Relocation; Discontinuation
- **Market contributions** and subsidies for productive investments do not score very highly in terms of their expected effective contribution
- For (conventional) innovative farms, the **subsidy instrument for non-productive investments** is interesting helps them reduce the burden of sustainability improvements through investments

FARMDYN

- To comply with all the **five objectives**, implies more land allocated for adoption of nitrogen fixing crops, long-term grassland, grassland with herbs, grass clover, longer grazing time
- To reach **gold biodiversity** points seems to be the biggest constraint
- Obtaining **bronze or silver was achievable** by Dutch dairy farmers, in terms that defined monetary compensation was sufficient to compensate income forgone and additional cost
- **Obtaining gold was a challenge causing a reduced farm income**, especially for intensive-dairy farming systems

LESSONS LEARNT

What to keep in mind when replicating these type of analysis in other countries…

- **IOI Matrix**
  - The most subjective and controversial element is defining the pathways
  - A steering group with only policy officers enabled a timely execution of the project
  - More experts and stakeholders involved would enhance the legitimacy of the process

- **Eco-scheme-farm income model**
  - Farmer behaviour is inherently difficult to assess
  - None of the large-scale models eco-scheme participation. Solution to have small-scale tools that include participation rates as an explanatory factor of the policy intervention
  - Tools4CAP highlighted that sectoral models do not provide a translation of market impacts into the farm dimension
  - Next step -> Linking AGMEMOD with FARMDYN will permit us to make some progress in this regard

KEY TAKEAWAYS

The Dutch case integrated several tools to support prioritising, design, and monitoring eco-schemes

- **IOI matrix**
  - A range of policy instruments exist to support different development pathways of dairy farms and thus facilitate the transition to more sustainable agriculture
  - The output of the tool can be used to support the selection of instruments aligned with objectives and pathways

- **Eco-scheme-farm income model**
  - FARMDYN adds value for *ex-ante* and *ex-durante* analysis
  - It can be used to (re)calibrate the key parameters in the eco-scheme (i.e., analyse impact of changes on payout and demand)

The case study has revealed that there are two points of view: government and farmers…

	Government	Farmers
Advantages/ strengths	Performance based (value for public money) Goal-oriented instead of prescribing means to farmers Flexible system adaptable over time Regional finetuning possible	Reward for effort and performance Stimulates entrepreneurship Allows for taking farm(er)-specific situations into account Linkage with own interest w.r.t. measures in relation to farming system
Disadvantages / weaknesses	Participation is unclear ex-ante and so is delivery Monitoring is more difficult than with Greening in former CAP	Payments received are no longer 'cost free' (require effort) System is complicated Uncertainty regarding adjustments & no long-term contracts

REFERENCES

Selected Tools4CAP documents

- D2.3 Methodological guidelines

https://www.tools4cap.eu/wp-content/uploads/2025/02/D2.3-Drafting-Finetunning-Methodological-Guidelines-final.pdf

- D5.1 Case study set-up plans
- D5.2 Case study analyses and descriptive factsheets
- D5.3 Handbook of good practices
- D5.4 Tools4CAP Policy Brief

Upcoming deliverables!
Stay tuned!

THANK YOU

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