

Exploring the potential of simulation models for assessing the CAP

Good Practice Workshop
Bari (Italy), 3-4 April 2025



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The European Evaluation Helpdesk for the CAP is responsible for providing support for monitoring and evaluation activities at the EU and Member State level. It works under the guidance of DG AGRI's Unit A.3 (Policy Performance) of the European Commission. The European Evaluation Helpdesk for the CAP supports all evaluation stakeholders, in particular DG AGRI, national authorities, Managing Authorities and evaluators, through the development and dissemination of appropriate methodologies and tools; the collection and exchange of good practices; capacity building and communicating with network members on evaluation-related topics.

Additional information about the activities of the European Evaluation Helpdesk for the CAP is available on the Internet through the Europa server [<https://eu-cap-network.ec.europa.eu/support/evaluation>].



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List of acronyms

AKIS	Agricultural Knowledge and Innovation Systems
CAPRI	Common Agricultural Policy Regional Impact Analysis
CMO	Common Market Organisation
DG AGRI	Directorate-General for Agriculture and Rural Development
DIB	Disaggregated Data for Interventions and Beneficiaries
FADN	Farm Accountancy Data Network
FSDN	Farm Sustainability Data Network
GDPR	General Data Protection Regulation
GPW	Good Practice Workshop
iMAP	Integrated Modelling Platform for Agro-economic Commodity and Policy Analysis
JRC	Joint Research Centre
MA	Managing Authority
PA	Paying Agency
PASMA	Positive Agricultural Sector Model Austria
SO	Specific Objective
SWOC	Strengths, weaknesses, opportunities and challenges
SWOT	Strengths, weaknesses, opportunities and threats



Executive summary

The ninth Good Practice Workshop of the European Evaluation Helpdesk for the CAP explored the potential of using simulation models for assessing the CAP. It took place in Bari (IT) on 3 - 4 April 2025, kindly hosted by the Italian National CAP Network, and was attended by 69 participants from 21 different Member States, including Managing Authorities, CAP networks, Paying Agencies, evaluators, EU-level evaluation experts, modelling experts and other evaluation stakeholders.

The workshop aimed to showcase the possibilities offered by using simulation models for evaluating the CAP, as well as the conditions for implementing them (e.g. what steps to follow for their use, how to decide which model is the most appropriate one).

Both days of the workshop included a capacity building component to help improve the understanding of simulation models among participants, and an exchange of good practice component to present and discuss practical examples of using simulation models in different contexts. Key messages from the workshop are:

> **Simulation models are most useful for policy design and impact assessment, and are increasingly relevant for CAP evaluations**, especially for the assessment of Pillar 1¹ interventions and environmental issues. The use of simulation models responds to the need for quantification, helps shape policy decisions and redirects implementation to achieve policy goals. Although simulation models are not the solution for every evaluation topic and may not be useful when actual data is available, they are powerful tools for addressing information gaps. They can estimate what would happen in the absence of the policy and, therefore, help policymakers understand its real added value, allowing them to adjust or take corrective actions.

- > **There are challenges for using simulation models**, stemming from their complexity, the need for high-quality data that may not always be available or accessible, the need for high technical expertise or the need to rely on certain assumptions, in order to simulate reality in an abstract but not oversimplified way, which may affect the precision of the results generated by the model.
- > **However, such challenges can be addressed** by (i) clearly specifying the needs or policy questions to answer; (ii) reaching out to all available data sources; (iii) performing data checks to verify correspondence with reality (i.e. calibration); (iv) building capacity/expertise for using models (e.g. through training or contracting relevant experts); and (v) raising awareness on available models and their scope while ensuring collaboration amongst modellers and between modellers and policy makers, as modelling is an interactive process.
- > **The best approach for using simulation models is to combine them with other tools** (i.e. triangulation). This includes (i) combining different models for different purposes (e.g. models simulating interventions, farm models, market models); (ii) combining simulation models with other quantitative tools (e.g. econometric tools); and (iii) qualitative validation approaches (e.g. having farmers and other stakeholders commenting on model results). Accompanying simulation models with large stakeholder processes has proven to be beneficial for better interpretation of their results as well.



Participants at the Good Practice Workshop 'Exploring the potential of simulation models for assessing the CAP', 3-4 April 2025, Bari, Italy.

¹ The CAP consists of two pillars, the first includes direct payments (i.e. annual payments to farmers to help stabilise farm revenues in the face of volatile market prices and weather conditions) and market measures (to tackle specific market situations and to support trade promotion); whereas the second pillar concerns rural development policy. For more info check: [https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI\(2016\)586622](https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI(2016)586622).



1. Introduction

The ninth Good Practice Workshop (GPW) of the European Evaluation Helpdesk for the CAP (Evaluation Helpdesk) took place in Bari (Italy) on 3-4 April 2025 and focused on exploring the potential of using simulation models to assess the CAP. Policy decisions must be transparently informed by evidence, with simulation models increasingly used to support the policy-making process and analyse the impact of policy options. They are quantitative tools used to represent complex systems and predict their behaviour under different scenarios. They are particularly useful for estimating the potential impacts of policy interventions across a wide array of economic, social and environmental topics.

In agriculture, the main purpose of simulation models is to analyse the effects of parameter changes on outcomes. They help explain why certain outcomes (e.g. changes in organic farming areas) may be expected when a policy changes (e.g. a higher rate of support for organic farming). Depending on their complexity, simulation models can be highly specific, illustrating how farmers transition to organic farming and how output prices are affected, as well as providing rudimentary results (e.g. the overall economic impact of organic farming on output).

Member States are encouraged to use simulation models in their CAP evaluations, as they allow the assessment of the impact of new policy measures and the net impact of existing measures.

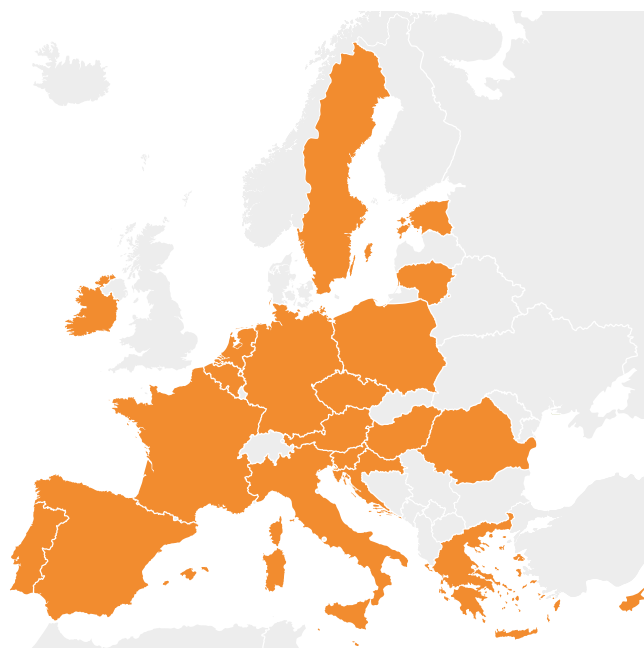
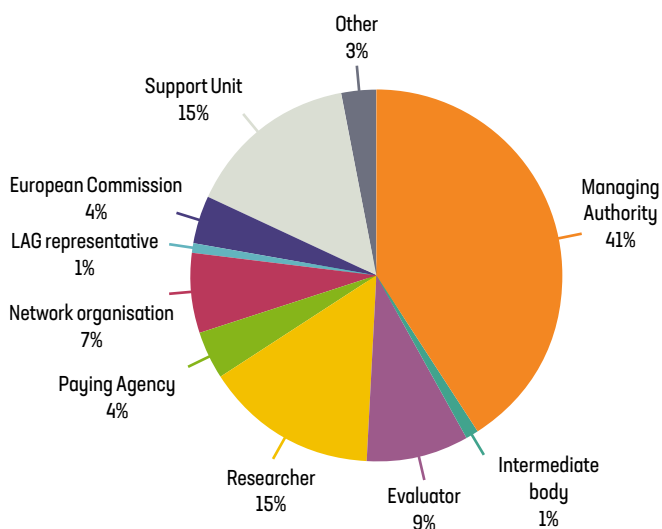
In addition, simulation models may also be useful for filling data gaps when implementation data is not available.

Therefore, the objective of the GPW was to showcase the possibilities offered by using simulation models for evaluating the CAP, as well as the conditions for implementing them (e.g. what steps to follow, how to assess whether a certain model is the right one, etc.). The workshops' specific objectives were:

- > **To contribute to building the understanding of CAP evaluation stakeholders** about simulation models, including the scope, relevance and use of such models for evaluations of the CAP.
- > **To exchange practical experiences** from the use of simulation models in the context of CAP evaluations and other relevant projects.
- > **To provide an opportunity for networking and identification of needs for further support** among GPW participants, such as Managing Authorities (MA), Paying Agencies (PA), CAP networks, researchers and evaluators in relation to the use of simulation models for evaluations of the CAP.

69 participants from 21 different Member States attended the workshop across the two days.

Figure 1. Participants of the Good Practice Workshop per role and Member State



Source: EU CAP Network supported by the European Evaluation Helpdesk for the CAP (2025)



2. Day 1 - Understanding simulation models

2.1. Setting the scene

2.1.1. Simulation models for agricultural policy analysis and assessment: scope and relevance



Dimitrios Psaltopoulos, Aristotle University of Thessaloniki (EL) and AGF, World Bank

Professor Dimitrios Psaltopoulos from the Aristotle University of Thessaloniki (EL) and the World Bank outlined the use of simulation models for agricultural policy analysis, focusing on their scope, relevance and applications. He highlighted various types of models, such as Common Agricultural Policy Regional Impact Analysis (CAPRI), RURAL-ECMOD², and Integrated Modelling Platform for Agro-economic Commodity and Policy Analysis (iMAP), which aids in ex ante and ex post evaluations of agricultural policies, such as the CAP. These models integrate economic, environmental and spatial data to provide evidence-based insights into policy impacts, addressing challenges like sustainability, trade-offs and rural development, which aid in ex ante and ex post evaluations of agricultural policies, such as the CAP.

Link to Prof. Psaltopoulos' presentation: [Simulation Models for Agricultural Policy Analysis and Assessment: Scope and Relevance](#)

After the presentation, participants posed the following questions and/or comments

The Dutch MA asked when it would be better to use simulation modelling and when it would be better to use economic reasoning.

As an economist, **Prof. Psaltopoulos** found that economic reasoning would be better to use as long as economists have a good understanding of the relevant political and economic issues.

Ms Sophie Helaine (European Commission - Directorate-General of Agriculture and Rural Development (DG AGRI)) emphasised the importance of quantification, for which modelling is needed. It is of the highest importance to be transparent on which models would be used; for instance, CAPRI is an open simulation model that everyone can access.

Prof. Psaltopoulos gave an example of a tested simulation model that showed that direct payments were detrimental to productivity and posed the question of what should be suggested to the national ministry. He explained that the tools are needed to assess impact estimates of alternative policy options, but that the results of a model should not be blindly followed.

² Joint Research Centre: Institute for Prospective Technological Studies, Gomez y Paloma, S., Balamou, E., Santini, F., Nohel, F. et al., *Ex-ante spatial policy impact analysis of the rural development policy in European rural areas (RURAL ECMOD)*, Sieber, S.(editor), Food and Agriculture Organization, 2012, <https://publications.jrc.ec.europa.eu/repository/handle/JRC68412>.



An intermediate body (DE) indicated that such simulation models are not cheap to produce, and that evaluation systems also could cost millions of euros. Therefore, they questioned in how far evaluation approaches / methods could be replaced by simulation models, especially at the national level.

In his personal opinion, **Prof. Psaltopoulos** found that if the know-how exists, the evaluation systems should be able to afford such investments. He also found that simulation models are more sophisticated tools than traditional approaches, but also more difficult to implement. He suggested finding evaluators who have the necessary know-how and ensure that they focus on the set target at all times and not on their scientific perspectives. He also found that more complex policies and issues warranted more complex tools.

Ms Helaine stated that it was not one or the other, but rather both. She shared that the beauty of simulation models was their strengths, especially in terms of education for stakeholders and policymakers. Econometric analysis would also be needed to see what happens on the ground, as simulation models are a simulation of reality. She shared the example given in the seventh GPW³, where the first results of the study estimating the climate change mitigation potential of 19 CAP Strategic Plans for the 2023-2027⁴ were presented, while the Austrian case presented during the same workshop indicated that organic farming was not causing that much change.

Mr Jongeneel (University of Wageningen) underlined the need for a combination of tools, as measuring is not easy and there are other uncertainties to resolve.

Prof. Psaltopoulos explained that researchers would create problems if they did not check reality with stakeholders, as there is no perfect simulation model and triangulation is necessary. He found that stakeholders help modellers by either correcting an error in the model or in interpreting model estimates. Without triangulation, even the best possible model (which does not exist) could be in trouble.

The intermediate body's (DE) reaction was that checking the results of a simulation model is part of its calibration and not done by the evaluation team, and is not an exact science. They found it important to consider what could be replaced, as checking the results of the model would always need to be done with stakeholders.

The Swedish MA asked **Prof. Psaltopoulos'** opinion on simulation models versus machine learning.

Prof. Psaltopoulos found that any approach not grounded in economic theory is of limited relevance from an economist's perspective.

Following this presentation, GPW participants carried out a short group activity to identify people with who have experience in using simulation models in their individual groups and gather relevant knowledge and experience from them on what model was used, when (e.g. ex ante, ongoing, ex post), and how (e.g. type of impacts, etc.).

³ European Commission - Directorate-General for Agriculture and Rural Development - Unit A.3 (2024): Assessing the contribution of carbon farming to CAP climate objectives. Report of the Good Practice Workshop 24-25 June 2024. Nantes, France, https://eu-cap-network.ec.europa.eu/events/good-practice-workshop-assessing-contribution-carbon-farming-cap-climate-objectives_en.

⁴ European Commission, 'Estimating the climate change mitigation potential of CAP Strategic Plans', European Commission website, 22 November 2024, accessed on 15 April 2025, https://agriculture.ec.europa.eu/media/news/estimating-climate-change-mitigation-potential-cap-strategic-plans-2024-11-22_en.



2.1.2. Simulation models for agricultural policy analysis and assessment: use and challenges



Dimitrios Psaltopoulos, Aristotle University of Thessaloniki (EL) and AGF, World Bank

Prof. Psaltopoulos continued his presentation exploring the use of simulation models for agricultural policy analysis by focusing on practical applications like policy design, impact evaluation and scenario analysis. He highlighted challenges, such as data limitations, model complexity and communication issues, while emphasising the importance of reliable data and clear interpretation. Future prospects include leveraging AI and big data to enhance model accuracy and accessibility for evidence-based policymaking.

Link to Prof. Psaltopoulos' presentation: [Simulation Models for Agricultural Policy Analysis and Assessment: Use and challenges](#)

After the presentation, participants posed the following questions and/or comments

An intermediate body (DE) asked whether scaling models up or down for policy analysis makes sense when they need to be applied in the field, and how many field checks are required to achieve a certain level of certainty in the model.

Prof. Psaltopoulos found that any kind of scaling exercise should not be performed during the application of the model, and that scaling up should be done before the modelling begins. After this, it is convenient to consult with stakeholders to verify the interpretation of model estimates.

According to **Ms Helaine**, it is important to first create a baseline that allows for more data checks and not behavioural checks.

Prof. Psaltopoulos added that this exercise is called calibration, meaning verifying the correspondence with reality.

An evaluator (PL) clarified that when the MA needs to convince stakeholders, they need to be aware that any model is about changing the equilibrium. They also suggested that providing training on how to use simulation models could be very useful, especially for Member States that lack the resources to invest in modelling.

Prof. Psaltopoulos commented that additional data availability is not always necessarily useful, as often this provides marginal benefits on estimates, while it is useful to have the broad picture.

Ms Helaine informed participants that the CAPRI consortium is organising a training available to everybody, starting on 17 April 2025. She also pointed out that another option to get proper expertise on simulation models is via PhDs as is done in France.

The CAP Implementation Contact Point highlighted how General Data Protection Regulation (GDPR) policies could lead to delays in data availability.

Prof. Psaltopoulos' experience from various projects was that it was easier to access data from non-Member States than from Member States.



2.2. Sharing experiences from Austria

2.2.1. Simulation model PASMA: background and application from the perspective of the Managing Authority



Anna Hagenauer, Austrian Federal Ministry of Agriculture, Forestry, Regions and Water Management

Ms Anna Hagenauer from the Austrian Federal Ministry of Agriculture, Forestry, Regions and Water Management shared that since there is no reference instrument available for assessing the overall impact of the CAP, Austria uses the Positive Agricultural Sector Model Austria (PASMA), as developed by Mr Schmid and Mr Franz Sinabell in 2002. The model addresses information gaps by analysing the effects of different policy and price scenarios on production, income, labour and environmental factors at the regional level, while also taking structural changes in the agricultural sector into account. Since its first application in the ex post evaluation of the 2007-2013 Rural Development Programme, the modelling and counterfactual scenarios have been progressively developed to better meet evaluation needs. In the current CAP period, PASMA has already supported the national strengths, weaknesses, opportunities and threats (SWOT) analysis during the ex ante evaluation, and its data will serve as a baseline for evaluators.

Link to Ms Hagenauer's presentation: [Agricultural sector model PASMA. Application in evaluation of the Austrian CAP Programmes. Perspective of the Managing Authority](#)

2.2.2. The use of simulation models in ex ante, mid-term and ex post evaluation – The model PASMA in Austria from the perspective of the evaluator



Franz Sinabell, Austrian Institute of Economic Research (WIFO)

Mr Franz Sinabell from WIFO (AT) gave an overview of the main elements of simulation models and explained that they are essentially a mathematical representation of farms, regions, or economic sectors. PASMA, as mentioned in the previous presentation, is a partial equilibrium model and can be used to analyse policy effects on the farm sector at regional scale. In PASMA, the rest of the economy is not represented. To serve multiple purposes, models like PASMA are designed in a modular manner. Depending on the evaluation questions, these models are used to evaluate effects on employment, value added, land-use effects and environmental indicators (e.g. nitrogen balance, greenhouse gas emissions). It is essential to note that results are based on simulations, and their validity differs from that of results derived from econometric analyses that utilise observed or experimental data.

Link to Mr Sinabell's presentation: [The use of simulation models in ex ante, mid-term and ex-post evaluation – The model PASMA in Austria](#)

After the Austrian presentations, participants posed the following questions and/or comments

The Romanian PA inquired about the time required to implement such a simulation model.

Mr Sinabell suggested starting with an existing model for which the MA knows people who can handle it, and have them prepare the necessary dataset. However, he emphasised the importance of having clarity on what questions the model is designed to answer, as "there is no need to use a hammer when a screwdriver would also work". Modelling is an interactive process, and there is no simple answer as it could take two years due to the structure and/or collection of data.



<p>A researcher (NL) asked what the figure in Ms Hagenauer's presentation showed regarding structural change.</p>	<p>Mr Sinabell explained that it was simulated 10 years after the accession of Austria to the EU. The scenario displays changes in gross value added and the loss of grassland (especially extensive) in a counterfactual situation without CAP payments.</p>
<p>The Belgian MA (Flanders) was impressed that the simulation model ran at NUTS-3 level and asked if this meant that data were available at NUTS-3 level to calibrate the model.</p>	<p>Mr Sinabell confirmed this and explained that there was even data at the level of municipalities, which was being considered for analysis. He stated that if there is a smart developer, it can be done at a regional level.</p>
<p>An evaluator (IT) understood PASMA to be a comprehensive model that embraces all purposes of the CAP and questioned if it could be used for environmental analysis.</p>	<p>Ms Hagenauer explained that one of the main focuses of the model was environmental analysis and so it indeed meets environmental needs. In Austria, it is used for the evaluation of Specific Objective (SO) 1 to 7.</p>
<p>The Swedish MA wondered if it would be possible to assess the quality of PASMA by comparing what the model predicted with the actual results and data, as it was used in relation to the previous CAP programming period.</p>	<p>Mr Sinabell explained that in the mid-term evaluation of the 2014-2020 Rural Development Programme, a new econometric model was used to compare the results on employment in rural regions at NUTS 3 level with the results of the simulation model. The results of the simulation model were within the statistically significant boundaries of the empirical model.</p> <p>Ms Helaine underlined that the role of a simulation model is not to predict, but to compare a situation with or without a policy. She shared a case from within DG AGRI, where contributions from different Member States were not entirely accurate; therefore, the simulation model used (i.e. CAPRI) was more accurate in estimating the costs rather than determining the contributions.</p>
<p>The Evaluation Helpdesk asked if the results of PASMA had shaped policy decisions in Austria, and what would have been done differently if the model were designed today.</p>	<p>Ms Hagenauer explained that the model was used to define the MA's needs and added that the study using PASMA is also accompanied by a big stakeholder process, so other data is considered (i.e. triangulation).</p> <p>Mr Sinabell thought that the results of simulation models should not be compared to observations. Stakeholders evaluate the results of simulation models and adjust their behaviours and policies.</p>
<p>An intermediate body (DE) asked if PASMA was tested against reality.</p>	<p>Mr Sinabell explained that the model that was used for the comparison of PASMA to check its results (see the reply to the question of the Swedish MA) was an expert performing econometric analyses with observed data and well suited methods to determine the effects of a measure in such an environment on that indicator. He stressed that if data is available for econometric (causal) analysis, he would advise against using a simulation model and simply start using the data to investigate potential effects.</p>

Following this presentation, participants developed a strengths, weaknesses, opportunities and challenges (SWOC) analysis in break-out groups on the use of simulation models. The goal of this exercise was for participants to consider both the usefulness and the challenges of using simulation models.



3. Day 2 – Using simulation models

3.1. Sharing experiences from Horizon Europe projects

3.1.1. Tools4CAP: inventory of methods and tools



Bérénice Dupeux, Ecorys, Tools4CAP

Ms Bérénice Dupeux from Ecorys presented the Horizon Europe project Tools4CAP⁵. She described the purpose and outputs of Tools4CAP, which include an inventory of methods and tools, and stressed the relevance of modelling tools for ex post evaluation, given that such tools have mainly been used for ex ante assessments up to now. She complemented her presentation with examples of indicators that can be calculated using modelling tools.

Link to Ms Dupeux's presentation: [Tools4CAP: Inventory of Methods and Tools](#)

After the presentation, participants posed the following questions and/or comments

The CAP Implementation Contact Point asked how easy it is to start using the different tools.

Ms Dupeux clarified that the first step of the project was to create an inventory and assess the capacities of the tools. The project's current phase is testing, where some tools are tested in selected Member States. The final purpose of the project is to raise awareness among Member States and to clarify the specific usefulness of each tool and how they can be applied in practice. So far, the project gathered case studies from Spain, the Netherlands, Czechia, Hungary and Slovenia.

An intermediate body (DE) was grateful to the project for bringing more transparency into the world of simulation models and bringing it closer to its end-users.

The Belgian MA (Flanders) was sceptical due to issues related to the precision and the dependency of solutions of simulation models and asked what the difference is between the precision and abilities of the presented simulation models.

Ms Helaine clarified that simulation models are not suitable for investment, risk management, cooperation and LEADER. On the other hand, simulation models are very successful for the assessment of Pillar 1 and environmental issues, specifically for area-based measures. It was also clarified that simulation models cannot be the solution for the assessment of every topic.

Ms Dupeux added that most models were tested several times in the past and peer-reviewed (the green highlighted models on slide 9 of her presentation are reliable).

⁵ The Horizon Europe project Tools4CAP <https://www.tools4cap.eu/>.



3.1.2. Tools4CAP: Joint models – The Dutch eco-scheme: an eco-points system with performance-based farmer remuneration



Roel Jongeneel, Wageningen University

The presentation by Mr Roel Jongeneel from Wageningen University (NL) focused on answering research questions related to understanding the adoption of farmers of the Dutch eco-scheme and the activities they choose. This was relevant since the Dutch eco-scheme is a performance-related scheme, where farmers, based on their choices, can gather points for five different objectives (climate, soil and air, water, landscape and biodiversity), which should exceed minimum threshold values, and is a determinant for the final per hectare payment (payments vary from bronze, silver, to gold, or from 60, 100 to 200 euros/hectare). The scheme is innovative but also complex, even though this did not hinder its wide adoption by farmers. Three types of simulation tools (the eco-scheme simulator as developed by the Dutch PA and a farm-model [i.e. a dynamic mixed integer bio-economic farm scale model called FARMDYN) and a market model (i.e. the econometric, dynamic, multi-product partial equilibrium model named AGMEMOD)) are used to create a broad picture about the factors influencing farmer participation.

Link to Mr Jongeneel's presentation: [Tools4CAP: Joint models – The Dutch eco-scheme: an eco-points system with performance-based farmer remuneration](#)

After the presentation, participants posed the following questions and/or comments

<p>An evaluator (PL) commented that farmers can be incentivised to deliver public goods, though the details are problematic, and asked how the coefficients for the per hectare payments were determined and how the evaluation of public goods was done.</p>	<p>Mr Jongeneel clarified that there is room for improvement. It was not determined by farmers but by an independent technical group of experts (TWEG) and farmers are, of course, commenting on it. In addition, he clarified that the optimisation model was based on farm income.</p>
<p>The Dutch MA commented that, in her experience, her colleagues have informed her that the University of Wageningen tested and advised them (i.e. the MA) on the model that should be used. She added that it is a well-thought-out model, and that work is being done to ensure people understand that adjusting the eco-point system is very difficult. In relation, having a model developed is positive, although translating it into decision-making is more challenging.</p>	<p>Mr Jongeneel explained that Wageningen pursued a study in which they suggested the recalibration of specific parameters in such a way that more 'value for money' would result. The Dutch MA made use of these insights, but had multiple considerations for the changes that were proposed, including political concerns and the wish to keep the system stable and reliable for farmers. At the farm level, the Netherlands has an intensive cropping system, which farmers have realised. A number of eco-activities were also in their own interest and the financial stimulus create a win-win for them.</p>
<p>A researcher (AT) asked for more information on the governance aspects of the Dutch eco-point system, when it was launched and why it was rolled out for the whole of the Netherlands and not in stages.</p>	<p>The Dutch MA clarified that representatives from the Dutch agricultural sector indicated that it was going to be too complex and very limited interest in participating, as well as pressure from lobbyists for the MA to lower some points. a consequence was an unexpected high uptake. Therefore, the Dutch MA had to shift from Pillar 1 to Pillar 2, including from a basic income scheme to an eco-scheme. Their goal was to offer eco-scheme support to all farmers receiving basic income payments.</p>



3.1.3. The Hungarian experience of using the CAPRI model



Norbert Potori, AKI, Hungarian Institute of Agricultural Economics

Mr Norbert Potori, Director of the Directorate for Agricultural Economics and Information Systems at the Institute of Agricultural Economics (AKI) (HU), presented Hungary's experience with the application of economic-mathematical simulation models recommended by the Commission for the ex ante and ex post impact assessments of CAP measures. In his presentation, which primarily focused on the CAPRI model, he outlined the factors that led the Institute to make a strategic decision nearly a decade ago to invest in understanding and mastering the use of these modelling tools. Drawing on the results of various research projects, he offered brief insights into the learning process and demonstrated the modelling capabilities the Institute currently possesses. He also outlined future goals, including the ambition to reach developer-level expertise. In addition to the CAPRI model, he referenced the use of the AGMEMOD model as well as AKI's own internally developed simulation models.

Link to Mr Potori's presentation: [Use of simulation models for CAP Impact Assessment: the Hungarian perspective with a focus on CAPRI](#)

After the presentation, participants posed the following questions and/or comments

A researcher (AT) asked about the advantages of an approach in which there are specialists who programme and run the simulation model, and different specialists who evaluate the results of the simulations.

Mr Potori explained that some people are specialists in simulation modelling, while others are specialists in agricultural markets and economics, so each person contributes in the area best aligned with their expertise and diverse professional backgrounds. He continued to emphasise the importance of teamwork and collaboration among those specialists, highlighting their stimulating and motivating effect.

Following these presentations, participants followed up on the SWOC analysis they developed on day 1 and performed a needs assessment to determine the necessary steps for using simulation models to assess the CAP (i.e. what needs to be done next).

3.2. Expert panel



From the left: Dimitrios Psaltopoulos, Norbert Potori, Matthias Hartmann, Sophie Helaine

To round up the second day of the workshop, an expert panel was held with Ms Helaine (DG AGRI), Prof. Psaltopoulos (presenter), Mr Potori (presenter) and Mr Matthias Hartmann (German MA). The main takeaways from the discussion are presented below.



3.2.1. Usefulness of simulation models

Simulation models are useful for policy design and impact assessment, and are suitable for ex ante analysis and scenario assessments. Regarding the accuracy of the results, it was recommended to not use absolute numbers but to use relative numbers and trends. Simulation models can be useful for MAs for policy implementation as well.

From an evaluation perspective, simulation models are particularly useful within the framework of the new performance-oriented approach. At the moment, Member States are not obliged to assess the Common Market Organisation (CMO) Regulation⁶, but in the future, the aim is to have an integrated approach and simulation models can play a key role thanks to their holistic nature. Furthermore, the Commission is using simulation models for policy design, but not yet for evaluations. In various framework contracts, the Commission requested that contractors master simulation models for potential use, but it could be advised that the Commission start by inviting the Joint Research Centre (JRC) to undertake evaluations using simulation models.

3.2.2. Next steps for MAs to use simulation models

Various steps were suggested by the panellists, including:

- › **Understand needs** → Although Member States have the policy framework and funds provided by the Commission, it is important to understand their specific needs in order to better understand how to use simulation models strategically and what their purposes will be.
- › **Understand the context** → It is necessary to understand the context and the market. CAP support is useful, but it is also relevant to use simulation models for assessing the economic viability of activities supported by policy.
- › **Identify the required expertise** → It is necessary to understand the expertise available to develop simulation models against the needs and context.
- › **MAs need to commit** → Being aware of the potential of simulation models is not enough, and there is a need for long-term commitment, internal resources and willingness to innovate.
- › **Ensure relevant, good quality data** → The challenge is to attract and secure the most relevant experts to use data. One suggested solution is that the Commission could provide public-use datasets, allowing experts to further investigate and eventually propose new methods and approaches to resolve current issues. It was clarified that the Commission already planned to share disaggregated data for interventions and beneficiaries (i.e. DIB) with the JRC.
- › **Publish interesting results in scientific journals** → This is relevant for researchers, but interested evaluators may also learn from the vast modelling experience.

⁶ Regulation (EU) No 1308/2013 of the European Parliament and of the Council of 17 December 2013 establishing a common organisation of the markets in agricultural products and repealing Council Regulations (EEC) No 922/72, (EEC) No 234/79, (EC) No 1037/2001 and (EC) No 1234/2007 OJ L 347, 20.12.2013, p. 671–854, ELI: <http://data.europa.eu/eli/reg/2013/1308/oj>.



4. Concluding remarks

The outcomes of the presentations and group discussions provided valuable insights on the usefulness of simulation models, their drawbacks and challenges, as well as the opportunities they offer.



Break-out groups at the Good Practice Workshop on 'Exploring the potential of simulation models for accessing the CAP', 3-4 April 2025, Bari, Italy.

The use of simulation models offers numerous advantages, including their relevance for evidence-based policy making. They are useful tools to support policymakers by comparing different policy scenarios or policy options (including no-policy scenarios) and supporting evidence-based policy making. Furthermore, many models are scientifically tested and proven to work well, particularly for assessing environmental impacts and Pillar 1 type interventions. Some models are open source and publicly available, but even those that require initial costs can be used long-term with less costly adaptations once developed. One of the main strengths of simulation models is that they can help address data gaps, especially when there is no observation data. Also, simulation models are flexible tools that offer a broad and holistic perspective on a policy, producing quantitative information that can be used to isolate the effects of different instruments and analyse causality.

Challenges associated with using simulation models include costs, expertise, the capacity to accurately reflect reality, assessing specific policy areas and interpreting results. The development and maintenance of simulation models entail high costs, which act as a deterrent in many cases. Many MA are not familiar with or lack knowledge of simulation models due to an absence of in-house expertise, and the need to engage modelling experts is often a deterrent, as it implies dependency on a scarce type of expertise. A typical weakness of models is that they cannot grasp all aspects of reality or that they simplify reality by using many assumptions, which is why they are sometimes considered a 'black box' that cannot explain everything and cannot take into account structural changes. Furthermore, they cannot be used to assess certain policy areas, such as generational renewal, animal welfare, LEADER, Agricultural Knowledge and Innovation Systems (AKIS) and sectoral initiatives. Data availability issues, related to quality, homogeneity or time lags, are also challenges to consider. An important challenge is the interpretation of model results in a way that is transparent, clear and easy to communicate to relevant stakeholders, especially if the results are intended for decision making.

Keeping all this in mind, **there are many opportunities to facilitate the use of simulation models.** First, there is potential to use AI to

improve and/or further develop models or to help interpret the results. Second, collaboration between the research community and MAs can help bridge the knowledge gaps that an MA may have in a particular field. At the same time, the role of National CAP Networks may be instrumental in bringing together different stakeholders. Third, there are opportunities to overcome capacity issues by using open-source models that have been tested and proven to work or using technical assistance to invest in skills development for using and interpreting models. Fourth, opportunities are emerging from the shift of the Farm Accountancy Data Network (FADN) to the Farm Sustainability Data Network (FSDN) in relation to data.

Several complementary steps have been identified during the workshop on **what needs to be done for Member States to be better equipped for using simulation models:**

- › **Build an understanding of the scope of modelling** → The MA need to increase their knowhow on when and how to use simulation models. Practices from other Member States on simulation models can help towards this understanding.
- › **Invest in skills development** → Capacity building can be done by training MA staff in the field of modelling techniques. Alternatively, terms of reference for evaluations could require including relevant skills in the evaluation teams. In addition, fostering partnerships with research institutes can ensure access to the required skills and expertise when needed.
- › **Develop a modelling culture** → Building a modelling culture involves active communication with policymakers and creating exchange fora and platforms that facilitate dialogue between the research community (e.g. universities, national research institutes) and policy makers. EU level research organisations (e.g. the JRC) with long-term established experience in simulation models are an important reference point as well.
- › **Capitalise on existing experience** → In addition to collaboration with research organisations, EU level projects (e.g. Horizon projects) may offer useful examples of simulation models for different policy areas. While some have already been tested at Member State level, others are ready to use even though they have not been tested at national level.
- › **Ensure financing** → This can be done by ensuring long-term funding for simulation models, potentially through the technical assistance budget or by building simulation models into the programme design/diagnosis.
- › **Invest in data and data sharing** → Access to data can be improved through training on all data sources, integration/connection of different data sources (i.e. invest in interoperability) and taking into account and overcoming any data protection issues.





Field visit to the Eco farm 'Contado' - Cooperative specialised in the production of almonds and olive oil, Toritto, Bari, Italy.



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