



# INTERACTIVE DECISION TOOL

DATA FOR THE ASSESSMENT OF RDP ACHIEVEMENTS AND IMPACTS

IMPACT INDICATORS:

I.08 FARMLAND BIRD INDEX (FBI)

I.09 HIGH NATURE VALUE (HNV) FARMING

JANUARY 2019

CONTENTS



LOGIC MODEL





# CONTENTS

INTRODUCTION

HOW TO USE THE TOOL

LOGIC MODEL 

ACKNOWLEDGEMENTS

DISCLAIMER

CONTACTS





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## Recommended citation:

EUROPEAN COMMISSION – Directorate-General for Agriculture and Rural Development – Unit C.4 (2019): Interactive decision tool - “Data for the assessment of RDP achievements and impacts” with a focus on data and information sources pertinent for the assessment of RDP achievements and impacts in 2019 and ex-post . Brussels, January 2019.

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The Evaluation Helpdesk is responsible for the evaluation function within the European Network for Rural Development (ENRD) by providing guidance on the evaluation of RDPs and policies falling under the remit and guidance of DG AGRI’s Unit C.4 'Monitoring and evaluation' of the European Commission (EC). In order to improve the evaluation of EU rural development policy the Evaluation Helpdesk supports all evaluation stakeholders, in particular DG AGRI, national authorities, RDP 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 European Evaluation Helpdesk for Rural Development is available on the Internet through the Europa server (<http://enrd.ec.europa.eu>).





## ACKNOWLEDGEMENTS

*The interactive **decision tool**, ‘**Data for the assessment of RDP achievements and impacts**’, has been developed by an international team of rural development evaluation experts including Jerzy Michalek, Demetrios Psaltopoulos, Dimitris Skuras, Jela Tvrdonova, Darko Znaor. The related thematic working group has been coordinated by the Evaluation Helpdesk under the guidance of Valdis Kudiņš and Hannes Wimmer. Giulia Bekk, Valérie Dumont, Matteo Metta and Myles Stiffler supported the development work and ensured the quality and visual appearance of the final interactive tool. Various experts have provided valuable input as peer reviewers (Juris Hāzners, Jaroslav Pražan, Gerald Schwarz). Representatives of DG Agriculture and Rural Development have ensured the coherence of the tool with the EU’s policy framework.*

The interactive **decision tool**, ‘**Data for the assessment of RDP achievements and impacts**’, is based on the logic model approach which was originally developed by the EU collaborative project ENVIEVAL (Grant Agreement No. 31207 in the EU’s 7th Framework Programme for research, technological development and demonstration). The Evaluation Helpdesk has applied this approach for its thematic working group, which serves to support Member States in their assessment of RDP impacts in 2019 and the ex-post.







## INTRODUCTION

The choice of a suitable evaluation approach is a critical step in the evaluation process. The wish to carry out a robust assessment of the policy's effects needs to be matched with those aspects which factor into conducting an evaluation (data and information availability, budget and resources, and the skills of the evaluators).

In the non-binding Guidelines, 'Assessment of RDP impacts and achievements in 2019', published in August 2018, logic models have been presented for the 13 Common CAP impact indicators covering Pillar II. These logic models support Member States in discussing different criteria for the choice of evaluation approaches for assessing the RDP's impacts during the evaluation activities in 2019 and the ex-post (2024).

The decision tool, 'Data for the assessment of RDP achievements and impacts', transports the logic models developed in the above Guidelines into an interactive format, while providing further detailed and practical information. The decision tool has been specifically **designed for RDP** evaluators who may wish to gain further insights into the criteria for each step of the decision making process when choosing an evaluation approach. This tool also provides practical recommendations on what to do in case of data gaps both in the short and long term, when solutions are needed.





## OBJECTIVES

The **interactive decision tool** consists of a set of 7 logic models covering the 13 Pillar 2 CAP Impact Indicators. The 7 logic models can be read separately and aim to:

- **Assist evaluation stakeholders** in their decision on which evaluation approaches they can use for the assessment of the common RDP impact indicators, as well as providing the necessary data and information sources at the EU level for these approaches.
- **Provide recommendations on possible solutions for overcoming data-gaps at the national and regional levels** (e.g. by providing guiding questions, practical hints and links to external information sources).

The tool focuses on data and information sources pertinent for the assessment of RDP achievements and impacts in 2019 and the ex-post. The decision tool is based on the Guidelines 'Assessment of RDP impacts and achievements in 2019'. Additionally, the tool provides:

- Explanations on data needs for proposed evaluation approaches including availability and suitability of data for RDP evaluations (frequency, delays, time series).
- Important questions to consider.
- Links to existing data sources and good practices.
- Complementary information on evaluation methods and their data needs.





# HOW TO USE THE TOOL

This interactive decision tool contains a set of **7 logic models**:

## Sector-related impacts



I.01 Agricultural entrepreneurial income



I.02 Agricultural factor income



I.03 Total factor productivity in agriculture

## Socio-economic impacts



I.14 Rural employment rate



I.15 Degree of rural poverty



I.16 Rural GDP per capita

## Environmental impacts



I.07 Emissions from agriculture

I.07 – 1 GHG emission from agriculture

I.07 – 2 Ammonia emissions from agriculture



I.08 Farmland Bird Index (FBI)



I.09 High Nature Value (HNV) farming



I.10 Water Abstraction in Agriculture



I.11 Water Quality:

I.11-1 Gross Nutrient Balance (GNB) (*Gross Nitrogen Balance (GNB-N) and Gross Phosphorus Balance (GNB-P)*)  
I.11-2 Nitrates in freshwater



I.12 Soil organic matter in arable land



I.13 Soil erosion by water

I.13-1 Estimated rate of soil loss by water erosion;  
I.13-2 Estimated agricultural area affected by a certain rate of soil erosion by water





# HOW TO USE THE TOOL

## Navigation within the clickable logic model:



Brings the user back to the starting page of the **logic model**

Are variables explaining participation known?

Takes the user to that specific **decision question** of the logic model



**Starting decision question** of the logic model

Hyperlinked text

Takes the user to an external source or to another slide



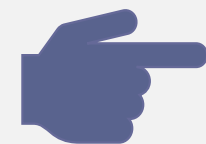
Examples



Additional notes



Previous page



Next page





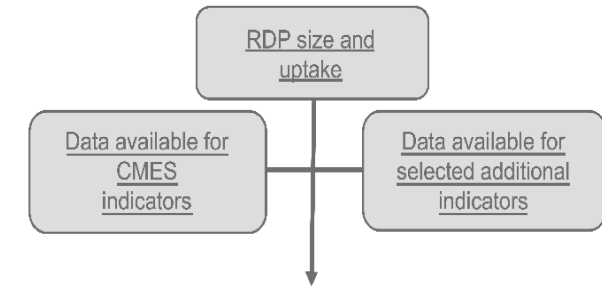


# HOW TO USE THE TOOL

## Structure:

Each logic model begins with a description of the:

- **RDP size, uptake** and other aspects that have to be considered for the selection of the evaluation approach.
- **Data availability for CMES indicators** needed to assess net impacts at the micro and macro levels, as well as, the specificities in the data availability for regionalised RDPs.
- **Data availability for selected additional indicators.**



Each **decision question** is organised in a way that facilitates the answers to the following **sub-questions**:

- Why is this question important?
- What are the conditions in order to answer the question with YES?
- Are there any specificities to be considered for regionalised RDPs?
- What can be done to improve the data situation (In the short term (for AIR 2019) and long-term (for ex-post)?

Each sub-question can be explored by clicking on its link.

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

[Why is this question important?](#)

[What are the conditions in order to answer the question with YES?](#)

[Are there any specificities to be considered for regionalised RDPs?](#)

[What can be done to improve the data situation?](#)

[Short-term solutions \(for AIR 2019\)](#)

[Long-term solutions \(for ex-post\)](#)

By answering each decision question in the tool with either a **'YES'** or a **'NO'** one will be taken to the next question, which will ultimately lead one to all possible evaluation approaches that can be applied given the specific criteria they have selected.





## HOW TO USE THE TOOL

The tool will suggest various applicable approaches based on the data and other information:

- **Approach A (an evaluation approach in an optimal data situation).**  
It can be used in 2019 and/or can be planned for the ex post evaluation.
- **Approach B (an alternative evaluation approach in case of data gaps).**  
In several cases, approach B contains a qualitative component.

Approach A (optimal)



Approach B (alternative)



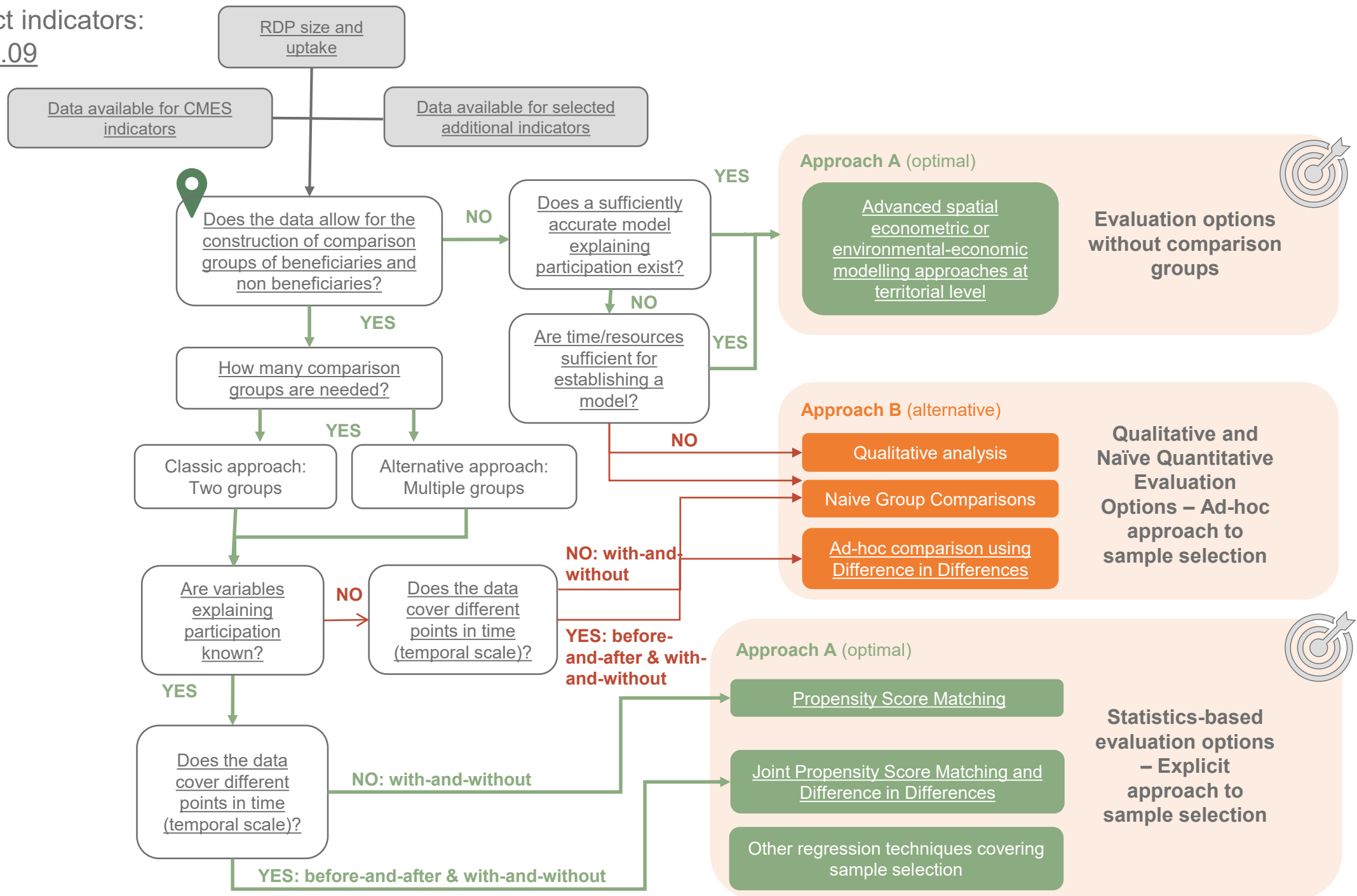
In case of questions or any technical difficulties in accessing the files, please contact the European Evaluation Helpdesk for Rural Development:

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Impact indicators:  
I.08, I.09





## Impact indicators

- I.08 Farmland Bird Index (FBI)
- I.09 High Nature Value (HNV) farming

### Impact indicators fiches



Guidelines *Assessing RDP achievements and impacts in 2019*, PART II, Chapter 2.4.1, Section: 'Intervention logic' and Chapter 2.5.1, Section: 'Intervention logic'

### Related Common Evaluation Questions:

**CEQ 26:** 'To what extent has the RDP contributed to improving the environment and to achieving the EU biodiversity strategy target of halting the loss of biodiversity and the degradation of ecosystem services, and to restore them?'



Guidelines *Assessing RDP achievements and impacts in 2019*, PART III, Chapter 3.5, Section: 'Clarification of general intervention logic linked to the CEQ'

**CEQ 28:** 'To what extent has the RDP contributed to the CAP objective of ensuring sustainable management of natural resources and climate action?'



Guidelines *Assessing RDP achievements and impacts in 2019*, PART III, Chapter 3.7, Section: 'Clarification of general intervention logic linked to the CEQ'





## RDP size and uptake

The size, uptake and the structure of the RDP are important factors in the selection of the evaluation approach. If only a few units are supported by measures under the given rural development priorities and focus areas which affect biodiversity and HNV farmland and if no significant RDP effects can be expected, then the evaluator can only apply less robust evaluation approaches (e.g. naïve group comparisons or qualitative methods). If the programme is large and has sufficient uptake the evaluators can apply statistics-based evaluation techniques (e.g. regression matching methods (PSM or environmental-economic modelling)). If data on FBI and HNV are provided in a time scale, the evaluators can further use joint with and without methods combined with the Difference in Differences method.





## Data availability for CMES indicators

### What is the unit of analysis and data available (EU-level)?

- At the micro level:
  - For the FBI (I.08) the unit of analysis is the field/plot (e.g. see the unit of observation in the survey carried out as part of the Pan-European Common Bird Monitoring Scheme (PECBMS)).
  - For High Nature Value (HNV) farming (I.09) the unit of analysis is the agricultural holding.
- At the macro level:
  - For the FBI (I.08) the unit of analysis can be the sampling point of the Pan-European Common Bird Monitoring Scheme (PECBMS) (Bird census data does not coincide with administrative boundaries).
  - For HNV (I.09) the unit of analysis can be any spatial unit for which HNV and data on RDP support can be matched.
- Specificities in the data availability for regionalised RDPs.







### Data available for:

- **FBI (I.08):** the basic database is the Pan-European Common Bird Monitoring Scheme (PECBMS). Countries monitor farm birds according to their own sampling procedures and make data available to interested parties at various spatial levels. Country specific information and how the observation points are drawn is directly retrieved through PECBMS's national partners.
- **HNV (I.09):** there is no common database of agricultural holdings specifically addressing issues of HNV or recording percentages of Utilised Agricultural Area (UAA) devoted to HNV. Therefore, such a database should be constructed.

### Proxies for:

- **FBI (I.08):** a modified list of birds has been adopted by certain countries. Alternative proxies may include population trends of separate species, or particularly prominent and relevant bird species.



Example: The United Kingdom

- **HNV (I.09):** there are no proxies because the features on the farm holding that could be used as proxies (hedgerows, stone walls, semi-natural areas, etc.) are all part of HNV.





### Data needed for:

- **FBI (I.08):** information concerning the sampling unit and the observation point within it. Additional information for the agricultural land that falls within the boundaries of the observation point. This information may include:
  - Data about the land that falls within the boundaries of the observation point (e.g. type of cultivation, size).
  - Data on the agricultural holding owning/managing the parcel (e.g. the eligibility of participation, familiarity with agricultural and other policies through participation in previous programming periods, environmental training of the owner/manager).
- **HNV (I.09):** a survey of agricultural holdings should be conducted. This survey should record:
  - A coherent measurement of the percentage of Utilised Agricultural Area farmed to generate High Nature Value (HNV) by category of HNV (Type 1, Type 2, Type 3) across all sampled units.
  - A record of key agricultural holdings' characteristics to be used in the construction of the counterfactual (screening non-beneficiaries, comparing and matching the group of beneficiaries and the group of non-beneficiaries) or as 'control' variables.





## Data availability for CMES indicators

## Micro level

## Example(s)



**The United Kingdom:** The UK used a smoothed FBI for evaluation purposes and complemented the index with measurements of the populations of rare and localised farmland bird species that were known to benefit from agri-environmental management

Reference: European Evaluation Network for Rural Development (2010), *Approaches for assessing the impacts of the Rural Development Programmes in the context of multiple intervening factors*, p. 115.





### Data available:

- **FBI (I.08):** the major EU-level database is the Pan-European Common Bird Monitoring Scheme (PECBMS). Aggregated results at the EU and national levels are shown in Eurostat's table (data is not provided for lower spatial units). The most recent country figures are for the year 2014. Many Member States do not report on this information because data has not been harmonised. Data at the country level does exist with a maximum of a 3 years lag. Countries monitor farm birds according to their own sampling procedures and have modified the list of monitored birds. Country specific information is directly retrieved at the PECBMS's site.
  - Eurostat environmental statistics - biodiversity (national farmland bird index).
  - Eurostat – agri-environmental indicators (information on population trends of farmland birds).
- **HNV (I.09):** the 2017 update of the context indicator document states that, 'it is not appropriate to impose a common methodology for the assessment of HNV farming. Therefore, a unique precise definition embracing all types of HNV farming areas across Europe is not possible. Nor it is possible to derive an aggregate value for the EU-28 of the extent in ha of the HNV area'.
  - For this reason, EU level estimates do not exist and country specific approaches must be considered. A survey of country specific methodological approaches can be found in a 2017 European Evaluation Helpdesk working document.





### Proxies for:

- **FBI (I.08):** the proxies are the same as those at the micro level and refer to a modified list of birds or measurements of the populations of rare and localised farmland bird species. Alternative proxies may include population trends of separate species, or particularly prominent and relevant bird species.
- **HNV (I.09):** there are no proxies at the macro level.

### Data needed for:

- **FBI (I.08):** the data for the sampling unit should be matched with corresponding data for the spatial unit of analysis (NUTS 5 or NUTS 4). This will help the evaluator to control for the different physical and environmental conditions. If the sampling units are to be used as macro units then this data may be soil data, slope and hydrographic data, biodiversity data, etc. The data that will support the macro analysis should be at the same resolution or should be harmonised through up-scaling or down-scaling.
- **HNV (I.09):** the macro units should contain data on support matched with data on HNV by category (Type 1, Type 2, Type 3). If an HNV map does not exist then information and data provided by other databases (CORINE, LUCAS, etc.) must be used.





### Specificities in the data availability for regionalised RDPs

- **FBI (I.08):** regional RDPs will probably have to deal with lower data availability since the PECBMS is designed and administered at the national level. However, at the regional level there may be other credible sources (from academic institutions or NGOs) to complement the PECBMS and enhance data quantity and quality.
- **HNV (I.09):** the lack of data can be resolved by using additional indicators.







## Data availability for selected additional indicators



Examples of additional indicators, unit of analysis and data sources are provided in the Guidelines *Assessing RDP achievements and impacts in 2019*, PART IV, Chapter 4.3, Section 4.3.1 'Additional indicators (examples)'

### FBI (I.08):

Many Member States complement the FBI with data on singing males of corncrakes, the number of bumblebees, the number of bumblebee species and/or the 'rate of change in the relative abundance of agriculture related butterfly species'. These additional indicators, can provide a better picture than the FBI in particular cases. Several evaluation exercises have been based on these proxies.



Examples:

- Hungary
- Lithuania

### HNV (I.09):

Lack of data can be resolved by using additional indicators. In Emilia-Romagna (Italy) an indicator for biodiversity has been developed to account for friendly farming practices for HNV at different scales. Additional indicators have been developed for resolutions and situations for LAU 2 in the Netherlands and LAU 1 in France.



Examples:

- Italy
- France
- The Netherlands





## Data availability for selected additional indicators

## Example(s)



**Hungary:** A study in Hungary based on the 'number of farmland bird individuals'. ENVIEVAL - Project: Report D9.5, Methodological Handbook for the evaluation of environmental impacts of RDPs, page 138.



**Lithuania:** A study in Lithuania based on 'singing corncrakes'. ENVIEVAL - Project: Report D9.5, Methodological Handbook for the evaluation of environmental impacts of RDPs, page 140





## Data availability for selected additional indicators

## Example(s)



**Italy (Emilia Romagna):** Viaggi, D., Signorotti, C., Marconi, V. and Raggi, M. 2015. Do agri-environmental schemes contribute to high nature value farmland? A case study in Emilia-Romagna (Italy). Ecological Indicators, 59, 62–69.



**France:** Desjeuxa, Y., T. Kuhlmanb, M.L. Paracchini, R. Michels, E. Maigné and S. Reinhard. 2015. Evaluating the impact of rural development measures on nature value indicators at different spatial levels: Application to France and The Netherlands. Ecological Indicators, 59, 41–61.



**The Netherlands:** Desjeuxa, Y., T. Kuhlmanb, M.L. Paracchini, R. Michels, E. Maigné and S. Reinhard. 2015. Evaluating the impact of rural development measures on nature value indicators at different spatial levels: Application to France and The Netherlands. Ecological Indicators, 59, 41–61.





RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

YES

NO

## Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

Why is this question important?

What are the conditions in order to answer the question with YES?

Are there any specificities to be considered for regionalised RDPs?

What can be done to improve the data situation?

Short-term solutions (for AIR 2019)

Long-term solutions (for ex-post)



Guidelines *Assessing RDP achievements and impact in 2019*, PART II, Chapter 2.1 and 2.4, 2.5 and PART IV, Chapter 4.3.

Guidelines *Assessment of RDP results*, Chapter 2.1 and 6.2, and Annex 11, Chapter 2.8.  
*Guidelines for the ex post evaluation of 2007-2013 RDPs*, Chapter 4.3



RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

YES

NO

## Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

### Why is this question important?

The ability to construct comparison groups is very important for the choice of evaluation methods especially when self-selection of programme participation is likely. Construction of comparison groups allows the application of advanced statistics-based techniques that deal with self-selection.





RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

YES

NO

## Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

### What are the conditions in order to answer the question with YES?

Conditions are linked mainly to the quantity and quality of available data and to the availability of the associated data to support the statistical analyses. For the FBI (I.08) this is directly related to the availability of observations at the monitoring site level, while for HNV (I.09) this is related to the availability of observations at the agricultural holding (or parcel) level, achieved through a survey of agricultural holdings.

Conditions to answer 'yes' for the FBI (I.08):

- ✓ Access to observation points for agricultural land operated only by RDP beneficiaries and another set of observation points operated only by non-beneficiaries.
- ✓ Access to data referring to the observation points habitat, environmental and physical conditions, etc. that will allow one to match observation points on the land of beneficiaries and non-beneficiaries.
- ✓ Data at the parcel level that falls within the boundaries of the observation point (e.g. type of cultivation, size). Data on the agricultural holding which owns/manages this parcel (e.g. the eligibility of participation, participation in previous programming periods, environmental training of the owner/manager).







RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

YES

NO

## Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

### What are the conditions in order to answer the question with YES?

For HNV (I.09), the database should be created through a very careful sampling procedure to reflect the RDP's intervention logic and its spatial coverage. The conditions are:

- ✓ Representative sample of beneficiaries (identified from the CMES operations database)
- ✓ Correspondingly representative sample of non-beneficiaries
- ✓ A coherent measurement of the percentage of Utilised Agricultural Area farmed to generate High Nature Value (HNV) by category of HNV (Type 1, Type 2, Type 3) across all sampled units
- ✓ A record of key agricultural holdings' characteristics to be used in the construction of the counterfactual (screening non-beneficiaries, comparing and matching the group of beneficiaries and the group of non-beneficiaries) or as 'control' variables





RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

YES

NO

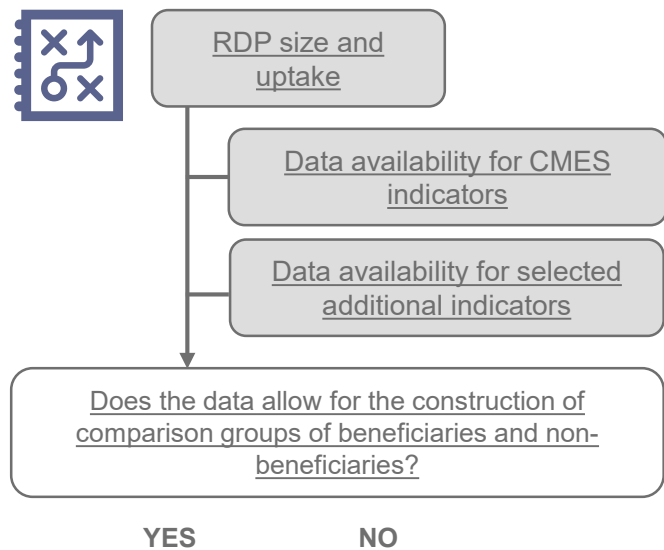
## Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

Are there any specificities to be considered for regionalised RDPs?

**FBI (I.08):** regional RDPs, due to their smaller area may not have an adequate number of observation points that will allow for the construction of comparison groups.

**HNV (I.09):** there are no specificities for regional RDPs, since the micro approach is based on a survey of agricultural holdings.





## Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

### What can be done to improve the data situation?

#### Short-term solutions (for AIR 2019)

**FBI (I.08):** If data exists, but the quantity or quality does not allow for the construction of comparison groups, the evaluator should examine the scope of increasing the quantity of data (e.g. number of observations) to assure a better representativeness of the results. One way of increasing the number of observations and their quality is to contact local data providers of biodiversity monitoring programmes and examine whether this data is representative and if it fits the aims and objectives of the evaluation.

**HNV (I.09):** If data from a survey of agricultural holdings does not exist, and there is no time to organise a survey, the comparison groups cannot be created and the evaluator should seek other evaluation approaches.

#### Long-term solutions (for ex-post)

**FBI (I.08):** The Managing Authority should ensure that the number of observation points allows for the construction of comparison groups by expanding the number or by permanent use of standardised local surveys.

**HNV (I.09):** The Managing Authority should support a regular survey of agricultural holdings with comparison groups and in accordance with a mapping of HNV. This survey can be carried out not only for the evaluation of HNV, but also for addressing other environmental indicators as well.





RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

**YES**

How many comparison groups are needed?

**Next**

## How many comparison groups are needed?

Why is this question important?

What are the conditions in order to answer the question?

Are there any specificities to be considered for regionalised RDPs?

What can be done to improve the data situation?

Short-term solutions (for AIR 2019)

Long-term solutions (for ex-post)



Guidelines *Assessing RDP achievements and impact in 2019*, PART II, Chapter 2.1 and 2.4, 2.5 and PART IV, Chapter 4.3.

Guidelines *Assessment of RDP results*, Chapter 2.1 and 6.2, and Annex 11, Chapter 2.8.

*Guidelines for the ex post evaluation of 2007-2013 RDPs*, Chapter 4.3



RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

**YES**

How many comparison groups are needed?

**Next**

## How many comparison groups are needed?

### Why is this question important?

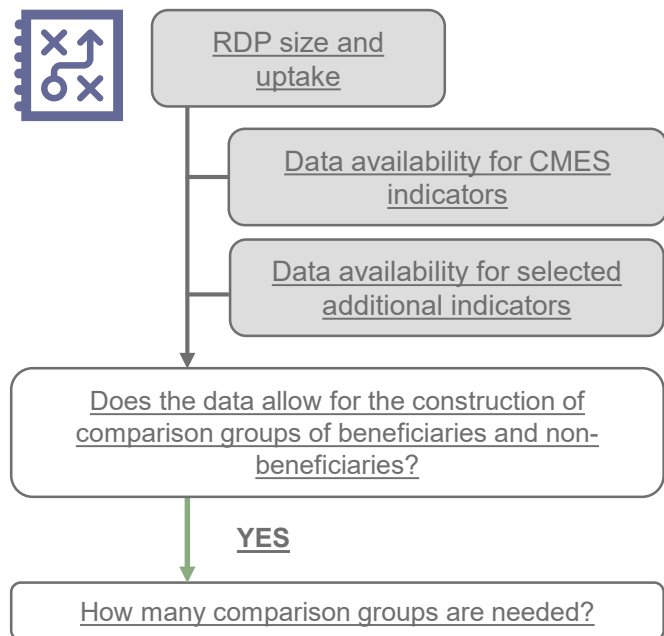
The number of comparison groups should reflect the evaluations aims and objectives. The number of comparison groups depends on the number of the direct effects of measures to be evaluated according to the RDP's intervention logic. This number may also be related to the design and the ad-hoc grouping of the survey.



Example:

- Hungary





**Next**

## How many comparison groups are needed?

### What are the conditions in order to answer the question?

The evaluator is looking to assess the individual direct effects that various measures had on the indicators. If there are two or more measures which may have distinct and separable effects on the farmland bird population, then the beneficiaries of these two measures can formulate two or more distinct comparison groups. For example, beneficiaries from M10 and beneficiaries from M11 together with the RDP non-beneficiaries can formulate three comparison groups.

#### **FBI (I.08):**

- ✓ The parcels of land (or observation points) within the monitoring sites should have a group identifier.
- ✓ The groups to be formulated should have an adequate sample size to allow for their statistical representativeness in the sample and for the application of advanced statistics-based methods.

#### **HNV (I.09):**

- ✓ Each agricultural holding should be the member of only one comparison group. If an agricultural holding is a member of more than one group, the evaluation becomes more complex and there is a risk of double counting the impact indicator at the holding level.
- ✓ The groups of agricultural holdings should have an adequate sample size to allow for their statistical representativeness in the sample and for the application of advanced statistics-based methods.





RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

**YES**

How many comparison groups are needed?

**Next**

## How many comparison groups are needed?

### Are there any specificities to be considered for regionalised RDPs?

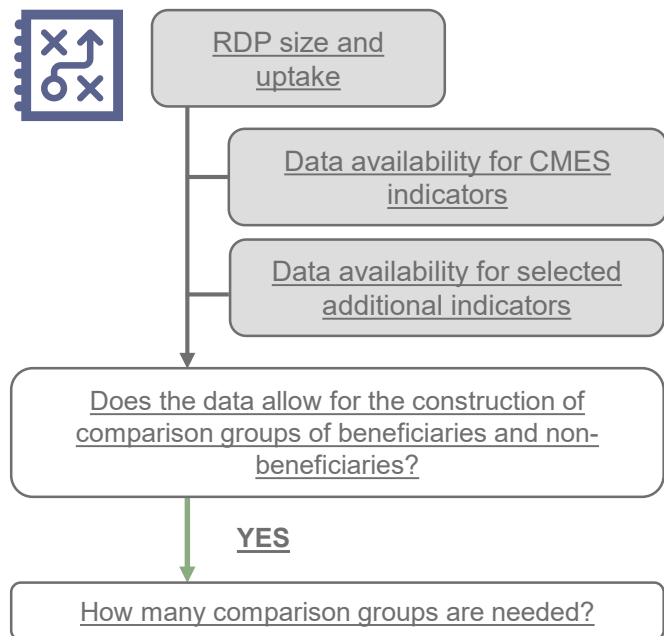
The construction of more than two comparison groups will increase data demand. Regional RDPs, as well as national RDPs of very small countries, may face data constraints.



Example:

- Cyprus





Next

## How many comparison groups are needed?

### What can be done to improve the data situation?

#### Short-term solutions (for AIR 2019)

##### **For FBI (I.08):**

- If data exist but the quantity or quality does not allow for the construction of more than two comparison groups, the evaluator should examine the scope for increasing the quantity of data (e.g. the number of observations) by incorporating ready to use local surveys from local providers of biodiversity monitoring data.

##### **For HNV (I.09):**

- If data from a survey of agricultural holdings exists, but its coverage is not adequate for constructing multiple groups and if time and resources are adequate, the evaluator should increase the sample size to cover all comparison groups.
- If there is no time to enhance the survey, then proceed in the short term with two comparison groups (RDP beneficiaries and non-beneficiaries) and from the collected data examine if there is a scope to establish multiple comparison groups in the long-term.

#### Long-term solutions (for ex-post)

**FBI (I.08):** Extend the coverage of the bird monitoring sites to a number that will be sufficient to cover multiple comparison groups.

**HNV (I.09):** Extend the agricultural holdings survey to cover multiple groups.







RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

**YES**

How many comparison groups are needed?

**Next**

## How many comparison groups are needed?

**Why is this question important?**

**Example(s)**



**Hungary:** Assessment of the 'number of farmland bird individuals' (additional indicator). A group design was applied based on the agri-environmental measure's participation and the 'naturalness' of each monitoring point as a share of the participant area inside the survey point divided by the share of natural areas inside the survey point.

Four comparison groups were formed where the number of farmland bird individuals was assessed:

- participant-natural,
- participant-non-natural,
- non-participant – natural,
- non-participant – non-natural.

ENVIEVAL - Project: Report D9.5, Methodological Handbook for the evaluation of environmental impacts of RDPs, page 138.





RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

**YES**

How many comparison groups are needed?

**Next**

## How many comparison groups are needed?

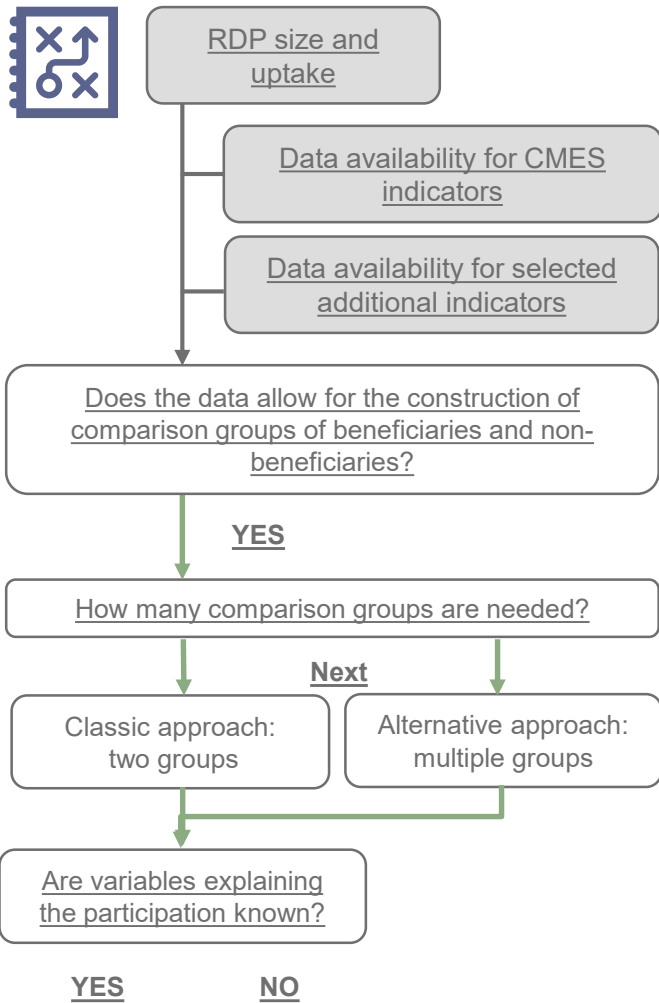
**Are there any specificities to be considered for regionalised RDPs?**

**Example(s)**



**Cyprus:** BirdLife Cyprus covers 70-100 monitoring sites that include all types of areas (forest, semi-wilderness and farmland). If more than two comparison groups are introduced, the average sample size per group can easily go below 20 and this will make matching more difficult.





## Are variables explaining the participation known?

Why is this question important?

What are the conditions in order to answer the question with YES?

Are there any specificities to be considered for regionalised RDPs?

What can be done to improve the data situation?

Short-term solutions (for AIR 2019)

Long-term solutions (for ex-post)



Guidelines *Assessing RDP achievements and impact in 2019*, PART II, Chapter 2.1 and 2.4, 2.5 and PART IV, Chapter 4.3.

Guidelines *Assessment of RDP results*, Chapter 2.1 and 6.2, and Annex 11, Chapter 2.8.

*Guidelines for the ex post evaluation of 2007-2013 RDPs*, Chapter 4.3



RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

**YES**

How many comparison groups are needed?

**Next**

Classic approach:  
two groups

Alternative approach:  
multiple groups

Are variables explaining the participation known?

**YES**

**NO**

## Are variables explaining the participation known?

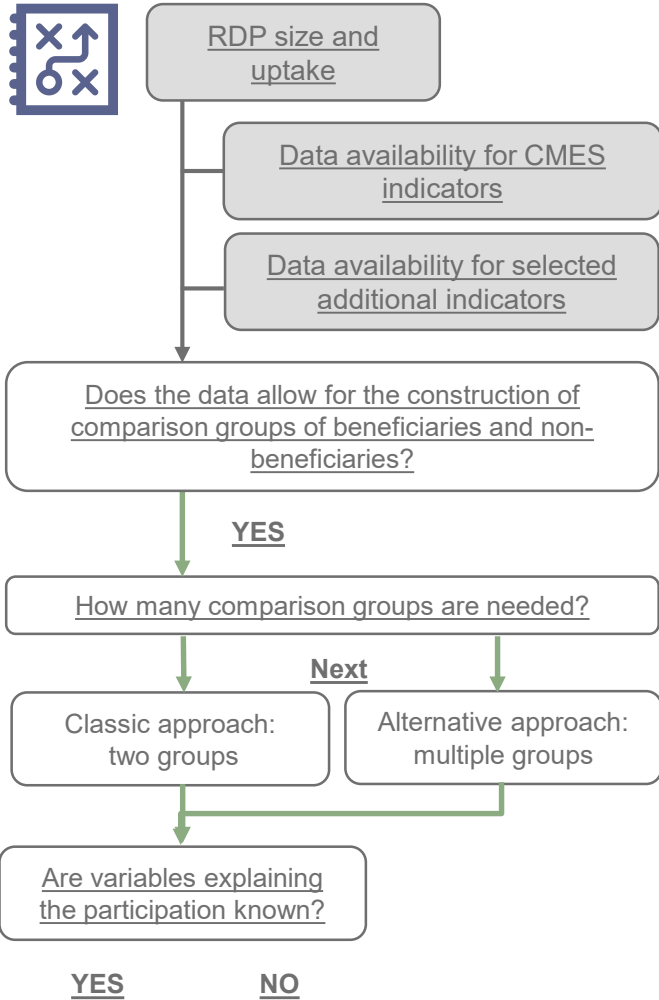
### Why is this question important?

Variables are used:

- To screen out non-supported holdings which would not fulfil the eligibility criteria.
- To test the statistical similarities of the comparison groups as an explanation for matching or control variables in statistical analyses.

Variables should be known for all comparison groups and should be defined and measured in the same way.





## Are variables explaining the participation known?

### What are the conditions in order to answer the question with YES?

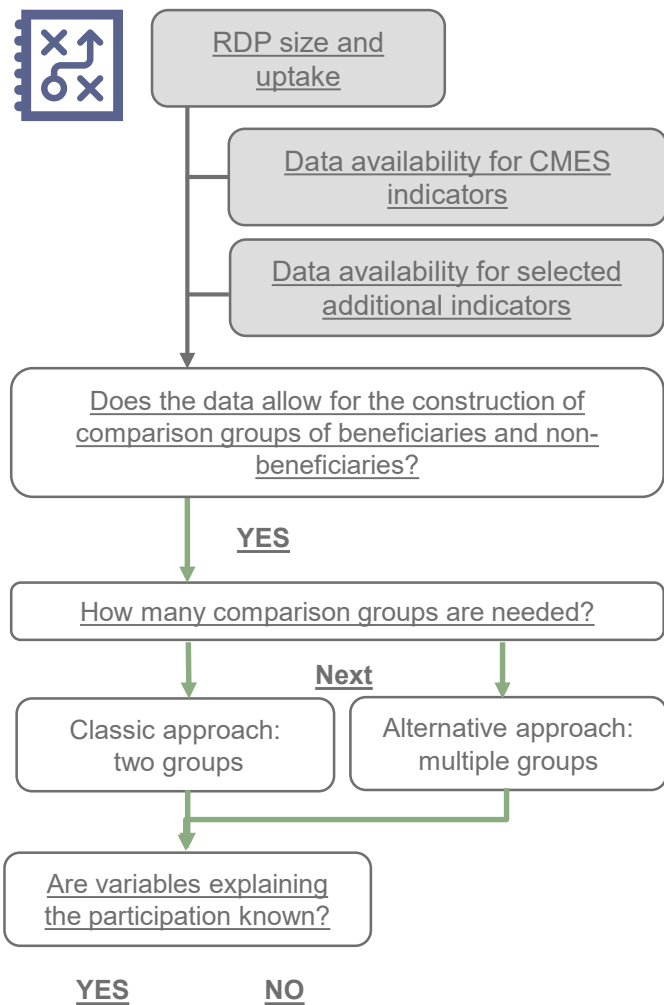
**For FBI (I.08):** the database of observation points should include all of the appropriate variables:

- ✓ Variables capturing the eligibility criteria for the land or the owner/manager of that land that is located within the point of observation. The impact indicator (I.08) for the observation point.
- ✓ Environmental and land use variables related to the observation point.

**For HNV (I.09):** the survey of agricultural holdings should include all of the appropriate variables:

- ✓ Variables capturing the eligibility criteria, so that the sample of non-beneficiaries includes only potentially eligible units.
- ✓ The impact indicator (I.09) on the % of UAA by HNV category (Type 1, Type 2, Type 3) or according to the definition that the country member has chosen to monitor HNV. This indicator should be consistently calculated across comparison groups.
- ✓ Environmental variables such as the dominant soil type (from a soil map of the area), land cover, slopes, hydrography and other variables that may be assessed by the evaluator as appropriate.





## Are variables explaining the participation known?

What are the conditions in order to answer the question with YES?

### I.08 (FBI) and I.09 (HNV):

- ✓ Variables explaining the participation/membership in each comparison group in cases where multiple comparison groups are used.
- ✓ Variables linked to the size, the type of farm (TF), Economic Size Unit (ESU), other farm characteristics.
- ✓ Owner's/manager's specific characteristics such as education, age, environmental certification, etc.
- ✓ Owner's/manager's involvement with rural development priority 1 measures - for beneficiaries only.
- ✓ Variables revealing previous RDP projects or other aid received such as the level of support received during the former programming period 2007-2013, and/or the level of support received from other public sources in this period.





RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

**YES**

How many comparison groups are needed?

**Next**

Classic approach:  
two groups

Alternative approach:  
multiple groups

Are variables explaining the participation known?

**YES**

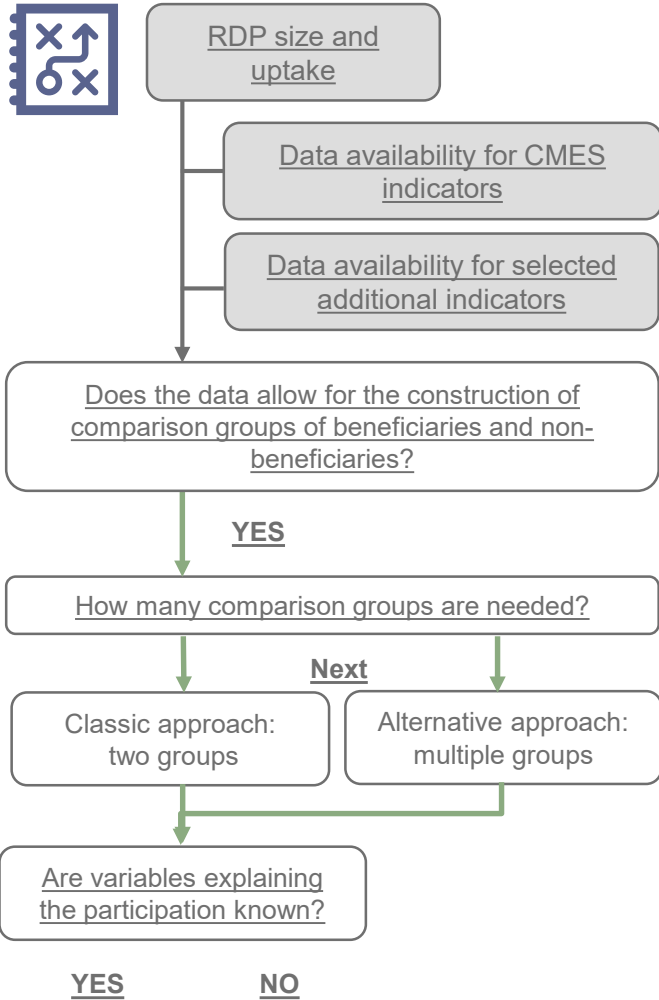
**NO**

## Are variables explaining the participation known?

Are there any specificities to be considered for regionalised RDPs?

There are no specificities for regionalised RDPs.





## Are variables explaining the participation known?

### What can be done to improve the data situation?

#### Short-term solutions (for AIR 2019)

##### FBI (I.08):

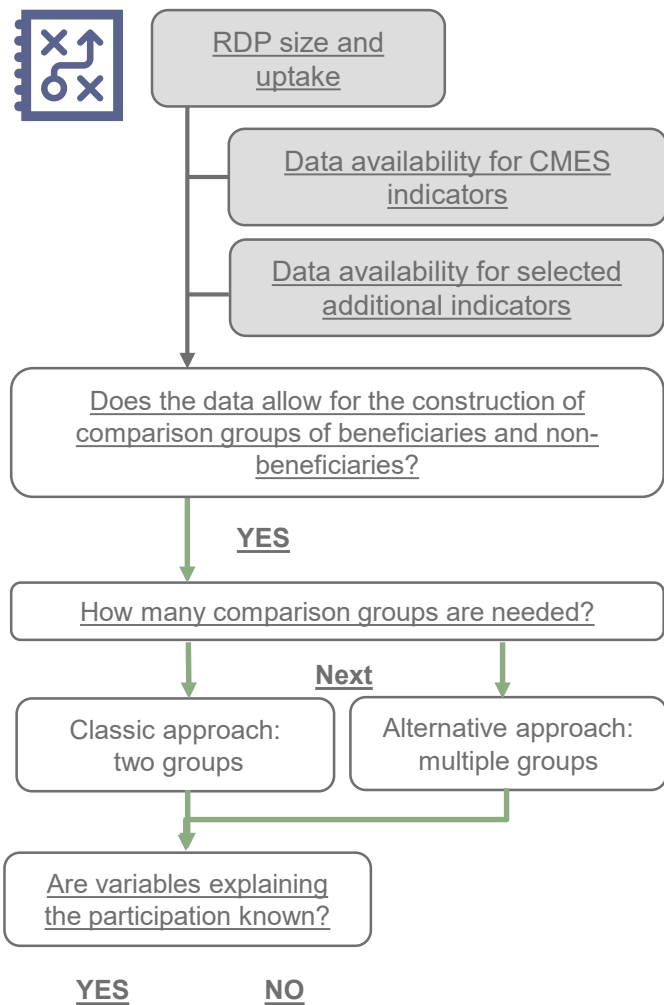
- Link georeferenced observation points with IACS/LPIS.
- Identify agricultural owners/managers within each observation point.
- Retrieve complementary information from IACS/LPIS.
- Complete missing information and data on participation variables through a quick telephone survey.

##### HNV (I.09):

- Make sure that surveyed agricultural holdings are linked to IACS/LPIS.
- Overlay them with a map of HNV, preferably by category (Type 1, Type2, Type3).
- Retrieve complementary information from IACS/LPIS.
- Complete the missing information and data on participation variables through a quick telephone survey.







## Are variables explaining the participation known?

### What can be done to improve the data situation?

#### Long-term solutions (for ex-post)

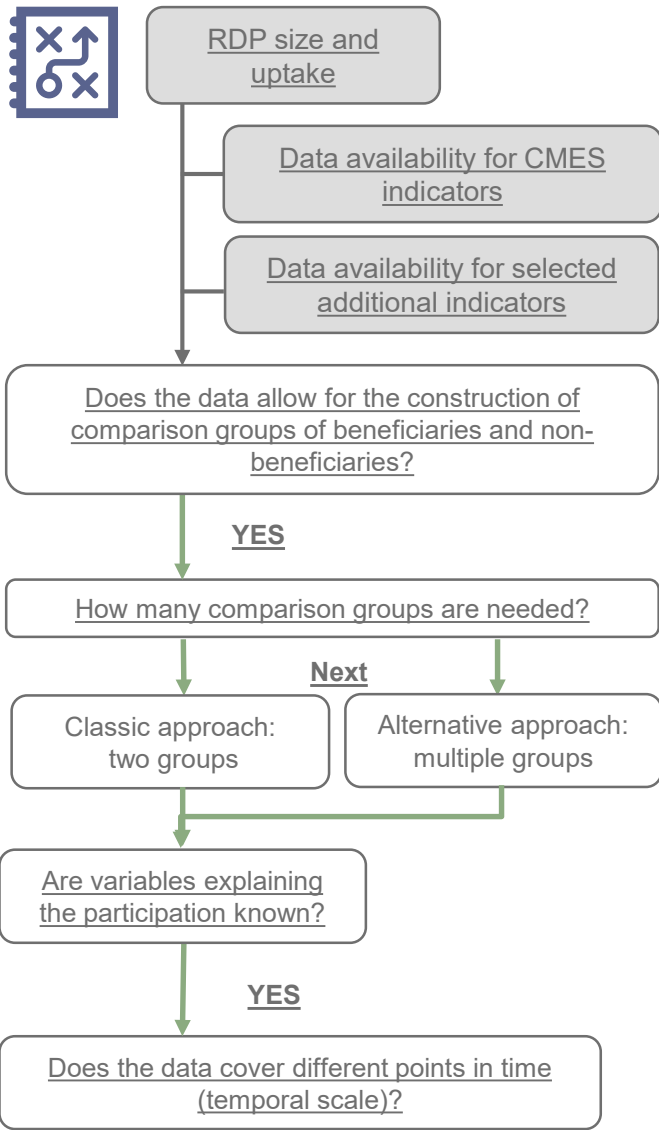
##### **FBI (I.08):**

- Establish a link between the FBI survey and the data from agricultural parcels/plots falling within the observation points as well as data on their owners/managers.

##### **HNV (I.09):**

- Establish a regular survey of agricultural holdings and database which stores all of the data needed to assess the indicator (i.e. variables allowing the construction of comparison groups and variables explaining participation).





**YES:**  
before-and-after  
& with-and-without

**NO:**  
with-and-without

## Does the data cover different points in time (temporal scale)?

Why is this question important?

What are the conditions in order to answer the question with YES?

Are there any specificities to be considered for regionalised RDPs?

What can be done to improve the data situation?

Short-term solutions (for AIR 2019)

Long-term solutions (for ex-post)



Guidelines *Assessing RDP achievements and impact in 2019*, PART II, Chapter 2.1 and 2.4, 2.5 and PART IV, Chapter 4.3.

Guidelines *Assessment of RDP results*, Chapter 2.1 and 6.2, and Annex 11, Chapter 2.8.  
*Guidelines for the ex post evaluation of 2007-2013 RDPs*, Chapter 4.3



RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

**YES**

How many comparison groups are needed?

**Next**

Classic approach:  
two groups

Alternative approach:  
multiple groups

Are variables explaining the participation known?

**YES**

Does the data cover different points in time (temporal scale)?

**YES:**  
before-and-after  
& with-and-without

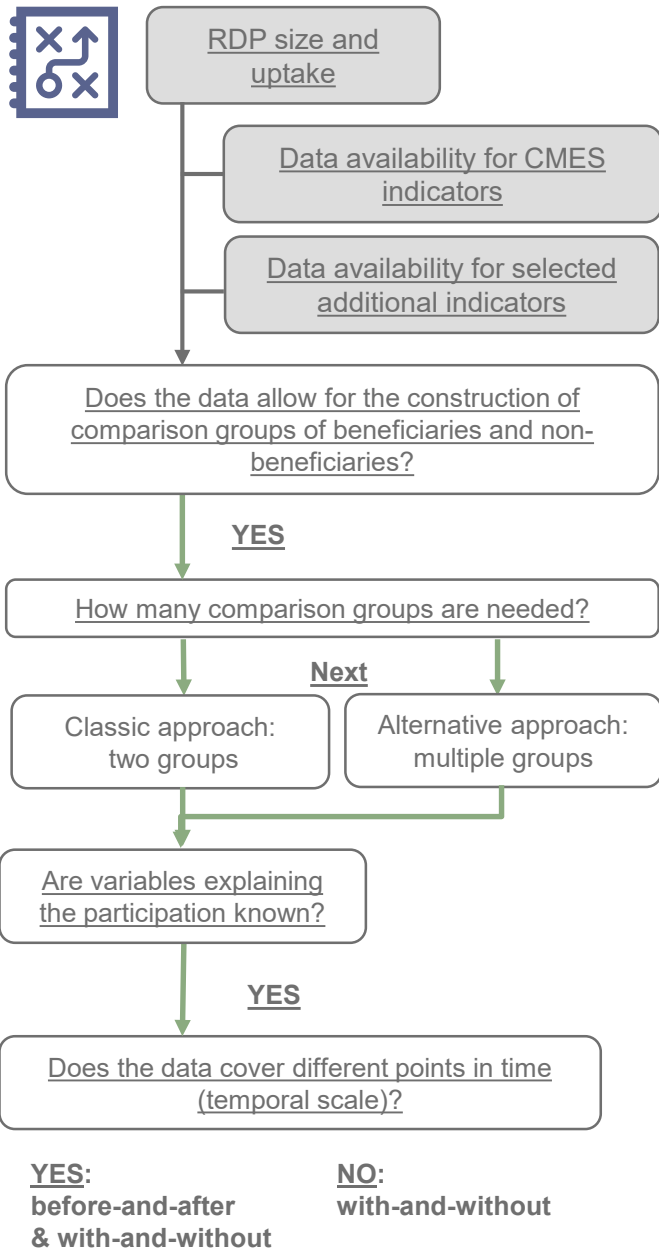
**NO:**  
with-and-without

## Does the data cover different points in time (temporal scale)?

### Why is this question important?

If the data covers various points in time (before, during and after the programming period) evaluation methods such as Propensity Score Matching (PSM) can be joined with Difference in Differences (DiD).





## Does the data cover different points in time (temporal scale)?

### What are the conditions in order to answer the question with YES?

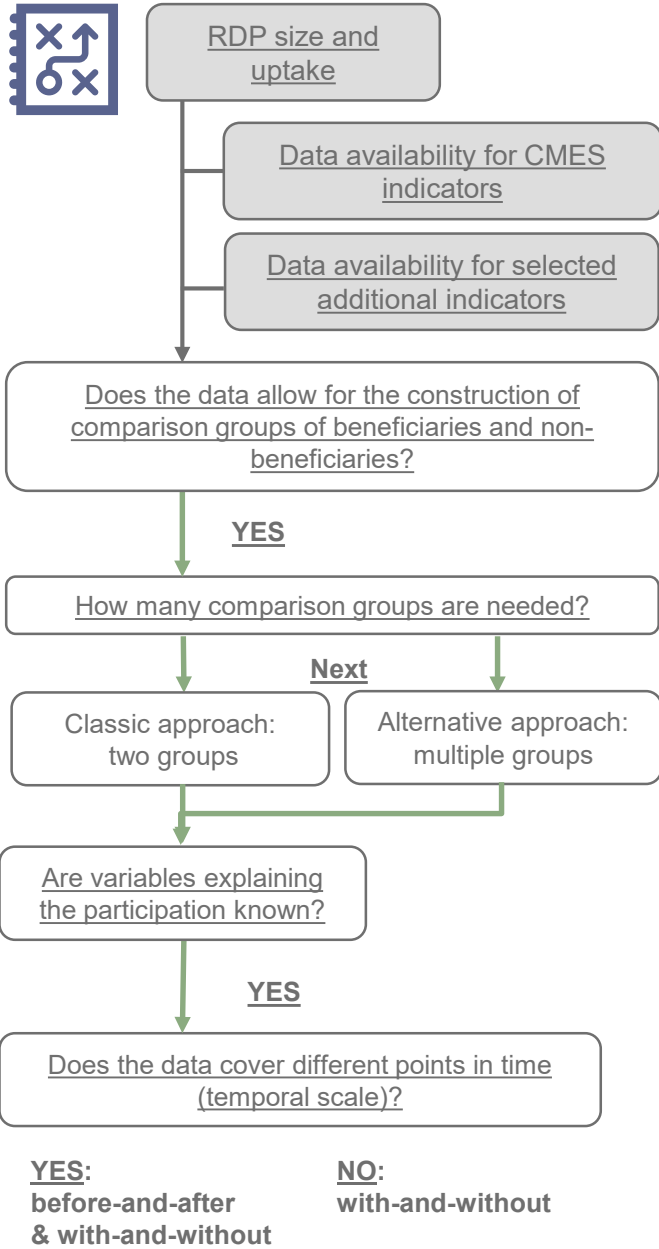
**FBI (I.08):** Observations for the FBI are annual, therefore, allowing for the points of observations to support temporal analysis. Data related to the agricultural land that falls within the observation points should be recorded in the same temporal scale as the FBI data.

**HNV (I.09):** HNV elements (e.g. semi-natural land, hedgerows, trees, stonewalls) should not change rapidly from year to year. In general, one survey at the start and one at the end of the programming period is sufficient to provide a temporal scale. If more surveys are needed this should be assessed on a case-by-case bases and according to the monitoring framework and the objectives of the evaluation.

### Are there any specificities to be considered for regionalised RDPs?

There are no specificities for regionalised RDPs.





## Does the data cover different points in time (temporal scale)?

### What can be done to improve the data situation?

#### Short-term solutions (for AIR 2019)

##### FBI (I.08):

- Link georeferenced observation points with IACS/LPIS.
- Identify agricultural land owners/managers within each FBI observation point.
- Retrieve complementary temporal information from IACS/LPIS on agricultural land and owners/managers.
- Complete missing temporal information and time-varying data through a telephone survey.

##### HNV (I.09):

- Nothing can be done in the short-term. Establish a survey of agricultural holdings linked with HNV for the long-term.

#### Long-term solutions (for ex-post)

##### FBI (I.08):

- The establishment of a link between the FBI survey and the spatial/temporal data from parcels/plots falling within the observation points.

##### HNV (I.09):

- Establish and run a regular survey of the same agricultural holdings which is then repeated at the end of the programming period.





RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

**YES**

How many comparison groups are needed?

**Next**

Classic approach:  
two groups

Alternative approach:  
multiple groups

Are variables explaining the participation known?

**YES**

Does the data cover different points in time (temporal scale)?

**YES:**  
before-and-after  
& with-and-without

## Joint Propensity Score Matching and Difference in Differences

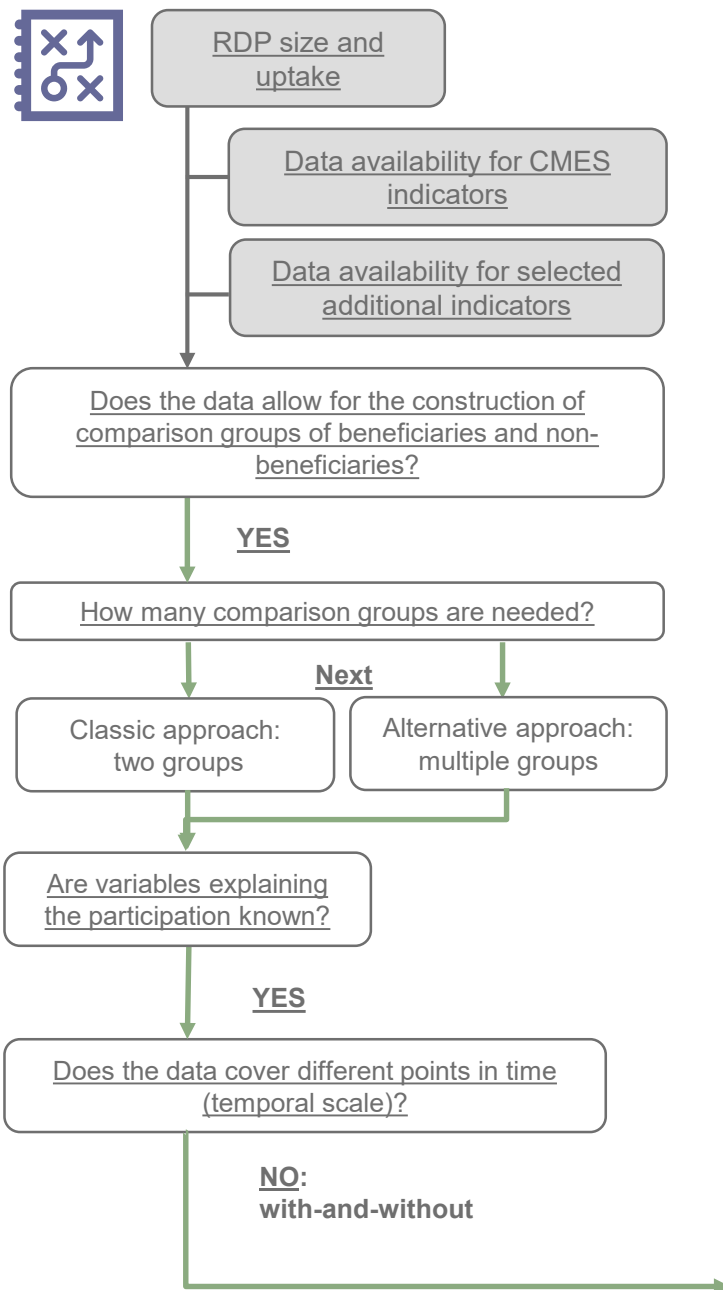


At the micro-level, if sufficient data is available at the field/plot scale level and by using the Common Birds Monitoring Programme the evaluation approach can be based on the comparison of beneficiaries and non-beneficiaries at the beginning of the programme and at the time of evaluation. To net out the RDP's effects on biodiversity and HNV advanced econometric methods can be applied (e.g. PSM combined with Difference in Differences).

At the macro-level, the quadrats (2.5km x 2.5km) of the data collection of the Common Birds Monitoring Programme can be selected as functional units for the Farmland Bird Index, which can then be calculated by bio-geographical areas (different agricultural habitats) or at the regional level on the basis of geo-referenced data. To net out the RDP's effects on biodiversity and HNV the joint PSM/DiD can be applied.



Read more in guidelines *Assessing RDP achievements and impact in 2019*, PART II, Chapter 2.4.3, 2.5.3 and PART IV, Chapter 4.3.2.



## Propensity Score Matching



At the micro-level, if there is sufficient data availability an assessment approach conducted at the field/plot scale level can be realised by using the Common Birds Monitoring Programme. This can be achieved based on the comparison of beneficiaries and non-beneficiaries to net out the RDP's effects on biodiversity and HNV through advanced econometric methods such as Propensity Score Matching (PSM).

At the macro-level, PSM is also recommended to net out the RDP's effects on biodiversity and HNV at the level of quadrats (2.5km x 2.5km) while using the data of the Common Birds Monitoring Programme. The quadrants can be used as functional units for the Farmland Bird Index and later calculated by bio-geographical areas (different agricultural habitats) or at the regional level on the basis of geo-referenced data.



Read more in guidelines *Assessing RDP achievements and impact in 2019*, PART II, Chapter 2.4.2, 2.4.3, 2.5.3 and PART IV, Chapter 4.3.2 and 4.3.3.



RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

**YES**

How many comparison groups are needed?

**Next**

Classic approach: two groups

Alternative approach: multiple groups

Are variables explaining the participation known?

**NO**

Does the data cover different points in time (temporal scale)?

**YES:**  
before-and-after  
& with-and-without

**NO:**  
with-and-without

## Does the data cover different points in time (temporal scale)?

Why is this question important?

What are the conditions in order to answer the question with YES?

Are there any specificities to be considered for regionalised RDPs?

What can be done to improve the data situation?

Short-term solutions (for AIR 2019)

Long-term solutions (for ex-post)



Guidelines *Assessing RDP achievements and impact in 2019*, PART II, Chapter 2.1, 2.4 and 2.5 and PART IV, Chapter 4.3.

Guidelines *Assessment of RDP results*, Chapter 2.1 and 6.2, and Annex 11, Chapter 2.8.

*Guidelines for the ex post evaluation of 2007-2013 RDPs*, Chapter 4.3





RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

**YES**

How many comparison groups are needed?

**Next**

Classic approach: two groups

Alternative approach: multiple groups

Are variables explaining the participation known?

**NO**

Does the data cover different points in time (temporal scale)?

**YES:**  
before-and-after  
& with-and-without

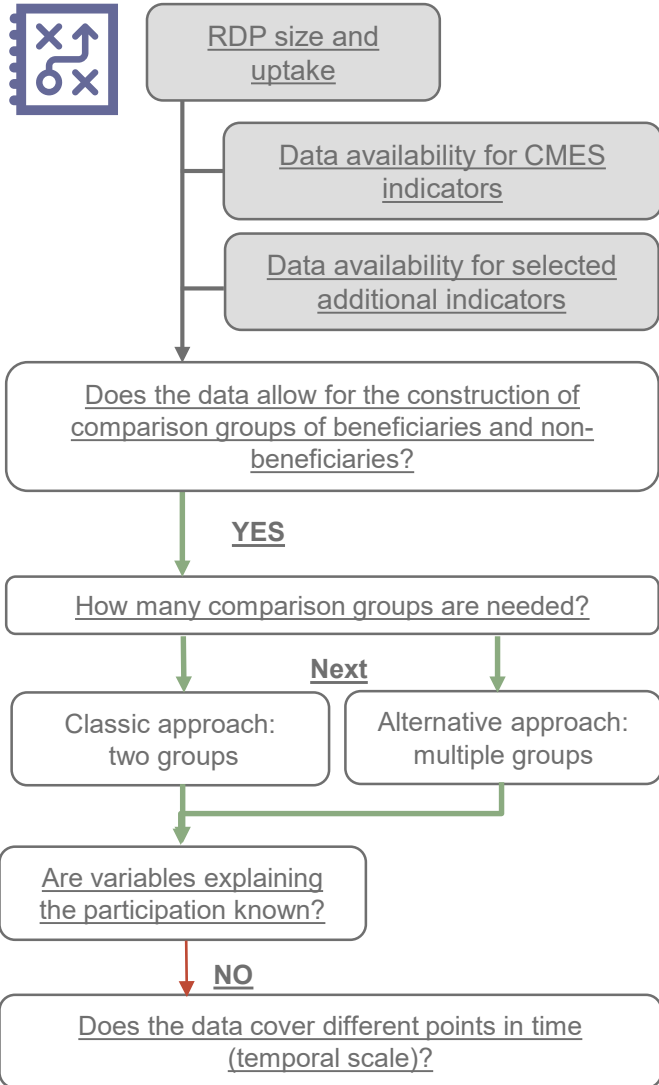
**NO:**  
with-and-without

## Does the data cover different points in time (temporal scale)?

### Why is this question important?

If comparison groups can be constructed but the variables explaining participation are not known usable methods will depend on the temporal scale. If the data covers different points in time (before during and after the programme's implementation), then ad hoc comparisons using DiD can be used.





**YES:**  
before-and-after  
& with-and-without

**NO:**  
with-and-without

## Does the data cover different points in time (temporal scale)?

### What are the conditions in order to answer the question with YES?

#### FBI (I.08):

- ✓ To have data related to the agricultural land that falls within the observation points recorded in the same temporal scale as the FBI data. This will reduce the part of the heterogeneity coming from the agricultural land and specific cultivations. The part of the heterogeneity coming from the farmer's/manager's specific characteristics cannot be addressed since variables explaining participation are not known.

#### HNV (I.09):

- ✓ Since HNV elements do not change rapidly from year to year, estimates of the indicator before and after the programming period or at least two points in time during the programming period for at least two comparison groups (beneficiaries and non-beneficiaries) is sufficient.
- ✓ Temporal estimates should be based on the same agricultural holdings in order to refer to the same HNV categories and types and control for heterogeneity introduced by the physical environment.

### Are there any specificities to be considered for regionalised RDPs?

There are no specificities for regionalised RDPs.





RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

**YES**

How many comparison groups are needed?

**Next**

Classic approach: two groups

Alternative approach: multiple groups

Are variables explaining the participation known?

**NO**

Does the data cover different points in time (temporal scale)?

**YES:**  
before-and-after  
& with-and-without

**NO:**  
with-and-without

## Does the data cover different points in time (temporal scale)?

### What can be done to improve the data situation?

#### Short-term solutions (for AIR 2019)

If estimates for the indicators I.08 (FBI) and I.09 (HNV) exist (measured in exactly the same way and from the same monitoring sites) for two comparison groups after the programme's start, there is a possibility to use these estimates from the end of the previous programming period to have a 'before-after' temporal scale without using any participation or other variables.

#### Long-term solutions (for ex-post)

##### **FBI (I.08):**

- In the long-term the establishment of an interlinked database between the FBI survey and the spatial/temporal data from parcels/plots falling within the observation points will provide such data.

##### **HNV (I.09):**

- Establish and conduct a regular survey of the same agricultural holdings that can be repeated at the end of the programming period, which will provide before and after estimates of the indicator.





RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

**YES**

How many comparison groups are needed?

**Next**

Classic approach:  
two groups

Alternative approach:  
multiple groups

Are variables explaining the participation known?

**NO**

Does the data cover different points in time (temporal scale)?

**YES:**  
before-and-after  
& with-and-without

## Ad-hoc comparison using Difference in Differences

At the micro-level, if there is insufficient data or time the assessment of RDP net effects on biodiversity and HNV can be realised through a number of alternative and less robust approaches to sample selection (e.g. based on naïve group comparisons). This, however, does not imply that only simple aggregated average values of beneficiaries and non-beneficiaries should be compared. Instead, a careful design of pairwise comparisons and multiple comparison groups differentiated by known factors and observables accompanied by the DiD method should be applied to reduce bias.



Read more in guidelines *Assessing RDP achievements and impact in 2019*, PART II, Chapter 2.4.2, 2.4.4, 2.5.4 and PART IV, Chapter 4.3.2 and 4.3.3.



RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

**YES**

How many comparison groups are needed?

**Next**

Classic approach:  
two groups

Alternative approach:  
multiple groups

Are variables explaining the participation known?

**NO**

Does the data cover different points in time (temporal scale)?

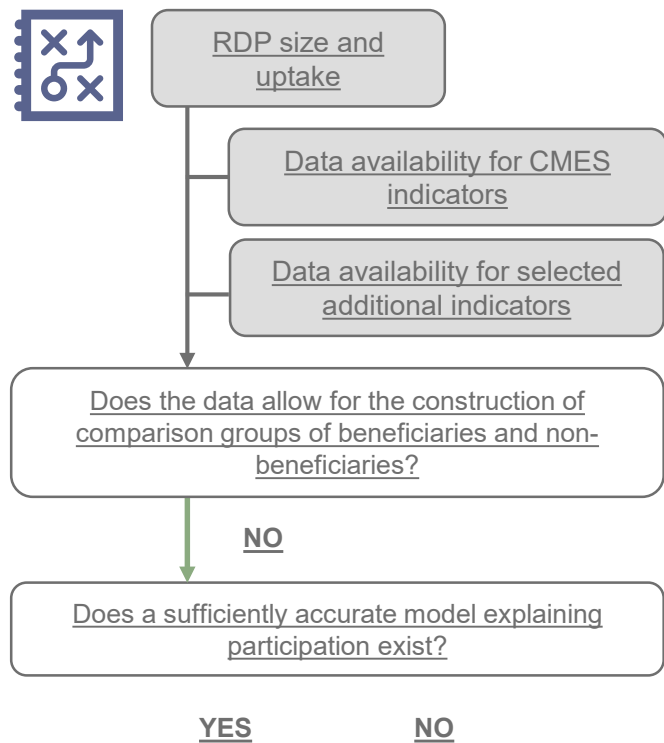
**NO:  
with-and-without**

## Naive Group Comparisons, Qualitative analysis

At the micro-level, if there is insufficient data or time the assessment of RDP net effects on biodiversity and HNV can also be attained through less robust approaches to sample selection (e.g. based on naïve group comparisons). Careful design of pairwise comparisons and multiple comparison groups differentiated by known factors and observables accompanied by the qualitative analysis can provide a reasonable alternative for the evaluation.



Read more in guidelines *Assessing RDP achievements and impact in 2019*, PART II, Chapter 2.4.2, 2.4.4, 2.5.4 and PART IV, Chapter 4.3.2 and 4.3.3.



## Does a sufficiently accurate model explaining participation exist?

Why is this question important?

What are the conditions in order to answer the question with YES?

Are there any specificities to be considered for regionalised RDPs?

What can be done to improve the data situation?

Short-term solutions (for AIR 2019)

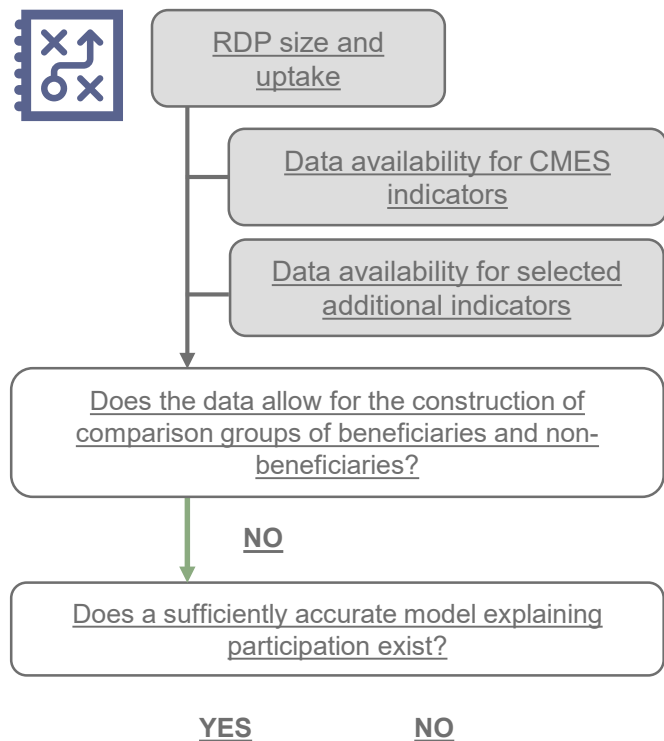
Long-term solutions (for ex-post)



Guidelines *Assessing RDP achievements and impact in 2019*, PART II, Chapter 2.1, 2.4 and 2.5 and PART IV, Chapter 4.3.

Guidelines *Assessment of RDP results*, Chapter 2.1 and 6.2, and Annex 11, Chapter 2.8.

*Guidelines for the ex post evaluation of 2007-2013 RDPs*, Chapter 4.3



## Does a sufficiently accurate model explaining participation exist?

### Why is this question important?

If a sufficiently accurate model explaining participation exists, then the evaluation can be carried out without the use of comparison groups.

### What are the conditions in order to answer the question with YES?

- ✓ A model exists.
- ✓ The data required by the model can be retrieved from databases or can be approximated.
- ✓ The statistical and/or computing skills required by the model can be found or contracted.

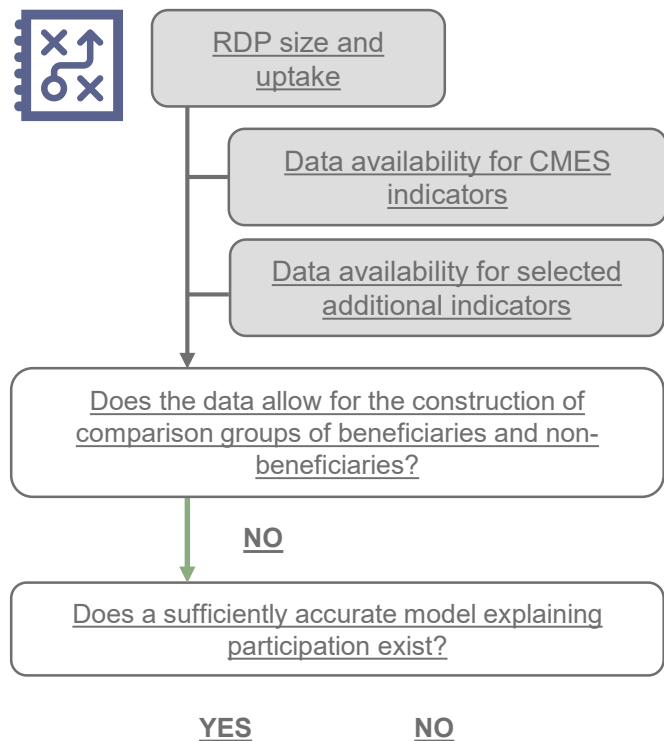


Example: Italy

### Are there any specificities to be considered for regionalised RDPs?

There are no specificities for regionalised RDPs.





## Does a sufficiently accurate model explaining participation exist?

### What can be done to improve the data situation?

#### Short-term solutions (for AIR 2019)

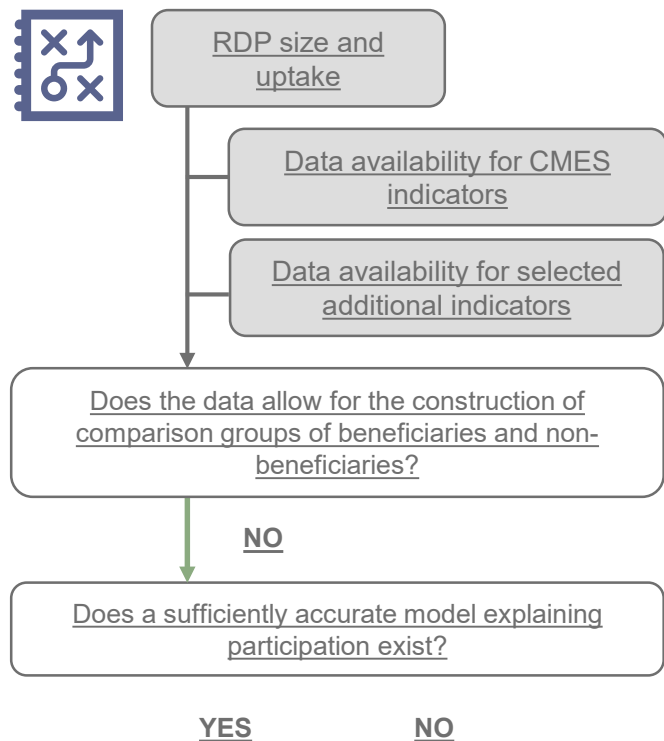
Models can be data demanding because they relate spatial estimates of the indicator with explanatory (independent) variables expressed at different spatial levels (NUTS 4 and lower). The data needed can be retrieved from unpublished public databases with the cooperation of relevant public services.

#### Long-term solutions (for ex-post)

Spatial econometric models need spatially defined data. Both the FBI and HNV are spatially defined. In the long term, other databases such as the EFSS should provide data at spatial levels lower than those publicly available to be associated with FBI and HNV data.







## Does a sufficiently accurate model explaining participation exist?

### Why is this question important?

### Example(s)



**Italy - Emilia Romagna:** The authors of the study construct a 'biodiversity friendly farming practices (BFFP)' indicator (additional indicator) based on the 2000 and 2010 census of agriculture. Then they use a spatial econometrics model at the municipality level (LAU 1) to show that the percentage of UAA participating in measure 214 (organic farming) is positively related to the BFFP as an additional indicator for HNV farmland.

Viaggi, D., Signorotti, C., Marconi, V. and Raggi, M. 2015. Do agri-environmental schemes contribute to high nature value farmland? A case study in Emilia-Romagna (Italy). *Ecological Indicators*, 59, 62–69.





RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

**NO**

Does a sufficiently accurate model explaining participation exist?

**YES**

**NO**

Are time/resources sufficient for establishing a model?

**YES**

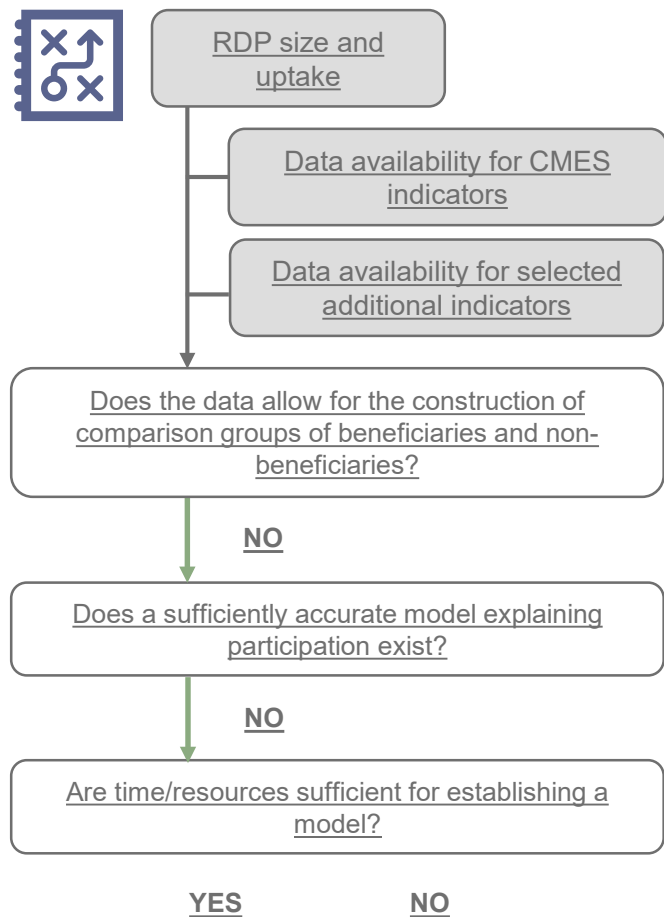
## Advanced spatial econometric or environmental-economic modelling approaches at territorial level



At the macro-level, the net effects of RDPs on biodiversity and HNV can also be shown without comparison groups. Spatial econometric models are suitable to assess the biodiversity impacts of RDPs on bio-geographical areas (different agricultural habitats) at the regional level. Counterfactuals can be incorporated through analysing areas or regions with different amounts of spending on the measures and the different development trajectories of biodiversity.



Guidelines *Assessing RDP achievements and impact in 2019*, PART II, Chapter 2.4.2, 2.5.2 and 2.6 and PART IV, Chapter 4.3.2 and 4.3.3.



## Are time/resources sufficient for establishing a model?

Why is this question important?

What are the conditions in order to answer the question with YES?

Are there any specificities to be considered for regionalised RDPs?

What can be done to improve the situation in terms of time and resources?

Short-term solutions (for AIR 2019)

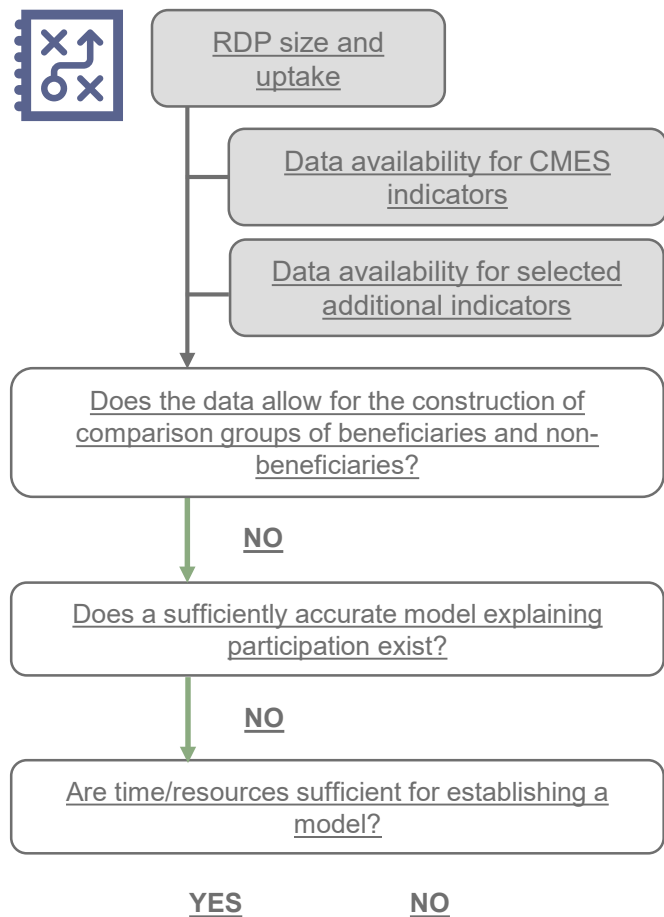
Long-term solutions (for ex-post)



Guidelines *Assessing RDP achievements and impact in 2019*, PART II, Chapter 2.1, 2.4, 2.5 and PART IV, Chapter 4.3.

Guidelines *Assessment of RDP results*, Chapter 2.1 and 6.2, and Annex 11, Chapter 2.8.

*Guidelines for the ex post evaluation of 2007-2013 RDPs*, Chapter 4.3



## Are time/resources sufficient for establishing a model?

### Why is this question important?

If time and resources are sufficient for establishing a model, then a model should be planned and executed. Time is usually required to locate and retrieve data and therefore resources for personnel with advanced econometric skills should be taken into account.

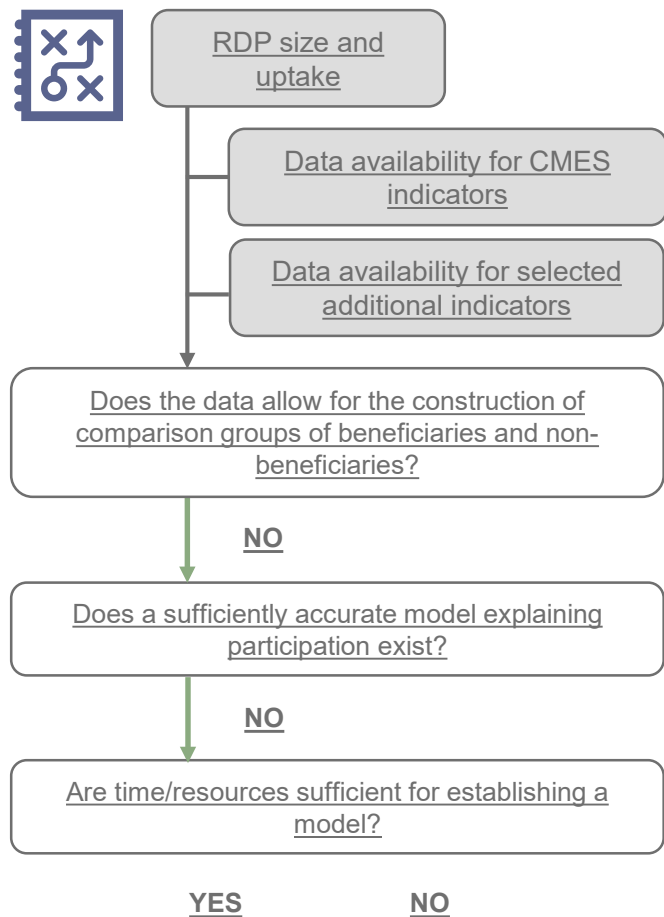
### What are the conditions in order to answer the question with YES?

- ✓ Time to locate and retrieve the required data.
- ✓ Resources in the form of personnel with advanced econometrics skills.

### Are there any specificities to be considered for regionalised RDPs?

There are no specificities for regionalised RDPs.





## Are time/resources sufficient for establishing a model?

What can be done to improve the situation in terms of time and resources?

### Short-term solutions (for AIR 2019)

Models often require information from different databases and sources such as CORINE, the agricultural censuses, the LPIS, etc. Data can be retrieved in parallel from different sources to speed up the process and save time. At the same time, data from these databases may be used in other evaluations, to save resources.

### Long-term solutions (for ex-post)

If time and resources exist the only problem to establish a model is that it may require the provision of data at low spatial scales.





RDP size and uptake

Data availability for CMES indicators

Data availability for selected additional indicators

Does the data allow for the construction of comparison groups of beneficiaries and non-beneficiaries?

**NO**

Does a sufficiently accurate model explaining participation exist?

**NO**

Are time/resources sufficient for establishing a model?

**NO**

## Naive Group Comparisons and Qualitative analysis

At the micro-level, if there is insufficient data or time the assessment of RDP net effects on biodiversity and HNV can also be attained through less robust approaches to sample selection (e.g. based on naïve group comparisons). Careful design of pairwise comparisons and multiple comparison groups differentiated by known factors and observables accompanied by the qualitative analysis can provide a reasonable alternative for the evaluation.



Read more in guidelines *Assessing RDP achievements and impact in 2019*, PART II, Chapter 2.4.2, 2.4.4, 2.5.4 and PART IV, Chapter 4.3.2 and 4.3.3.



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