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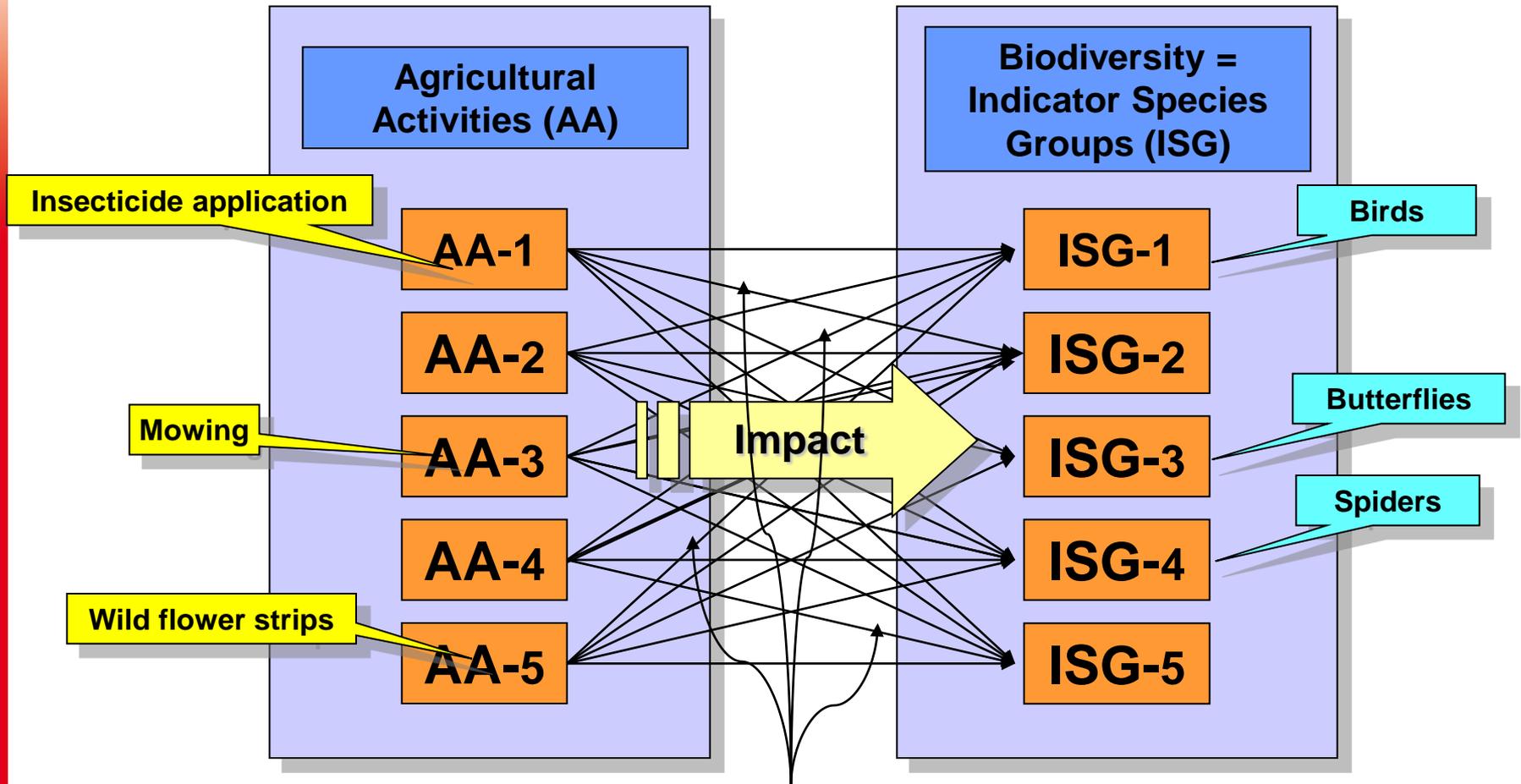
# Impact of agricultural land use and production on biodiversity in LCA

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# SALCA-Biodiversity

## Estimation of impact on biodiversity



**Scores based on scientific and expert knowledge**

Philippe Jeanneret | © Agroscope Reckenholz-Tänikon Research Station ART  
Modelling and predicting the impact of farming operations on biodiversity



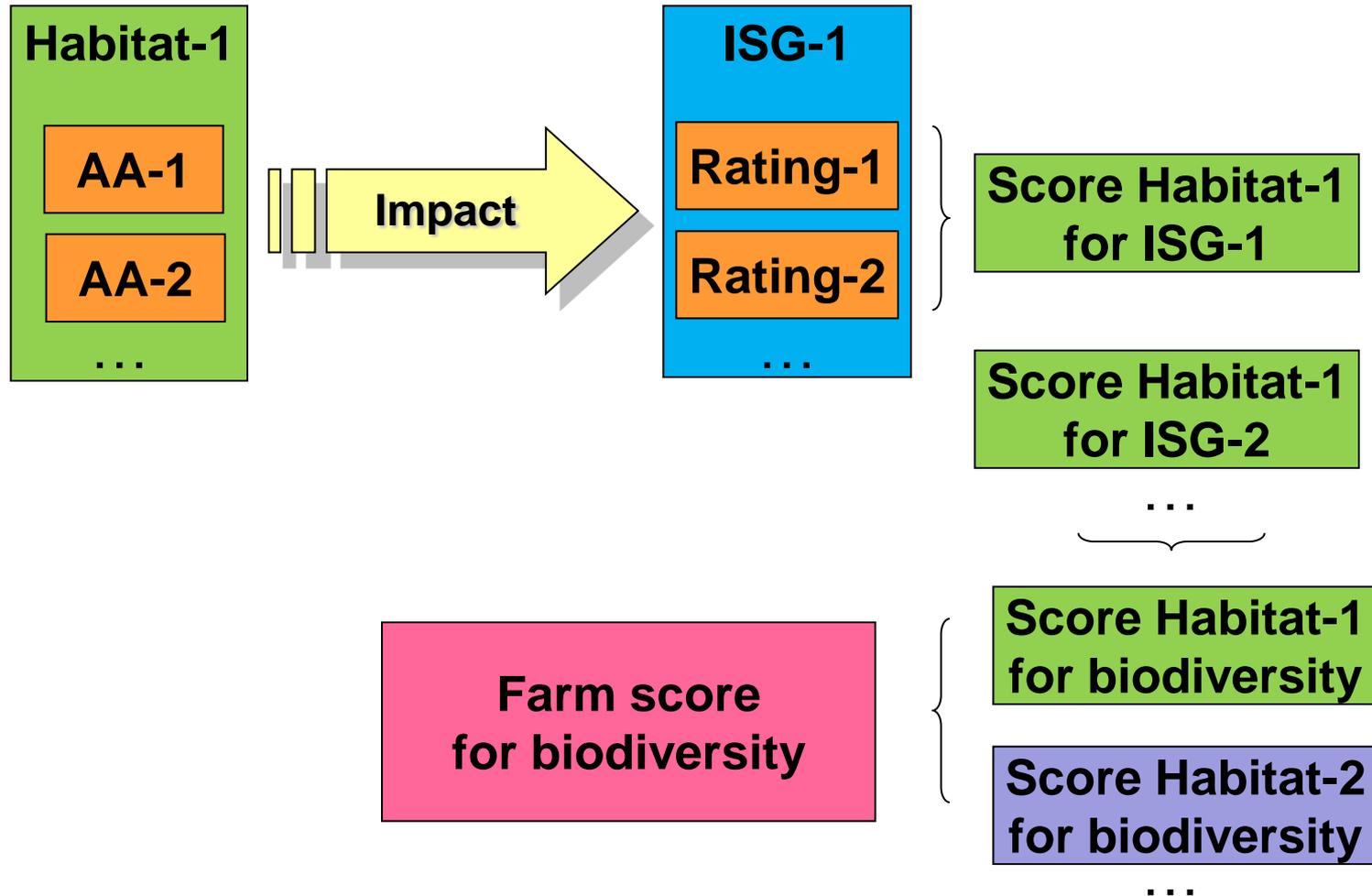
# Impact of agricultural activities on biodiversity selected indicators

Habitat type	Practice - Level I	Practice - Level II	Option	Rating
Meadow	Cutting	Number of cuts	no cut	5
Meadow	Cutting	Number of cuts	cut = very extensively used meadow	4
Meadow	Cutting	Number of cuts	cut = extensively used meadow	4
Meadow	Cutting	Number of cuts	cut = low input meadow	2
Meadow	Cutting	Number of cuts	cut = fairly intensive meadow	1
Meadow	Cutting	Number of cuts	cut = intensive meadow	1
Meadow	Cutting	Number of cuts	cut = too intensive meadow	1

- Impact of every option on each indicator is estimated with a **rating** between 0 and 5;
- Habitat type and practices have **coefficients** reflecting their significance for the indicator;
- Coefficients and ratings are estimated according to published investigations and expert knowledge;
- Coefficients and ratings are grouped to **scores**.



# Agregation steps





# Facing the problem: impact of agricultural land use on biodiversity

- First goal of the method: compare habitats/fields and management scenarios
  - Mechanical/chemical impacts of management operations on ISG are estimated regardless of the area of habitats/fields





# Facing the problem: impact of agricultural land use on biodiversity

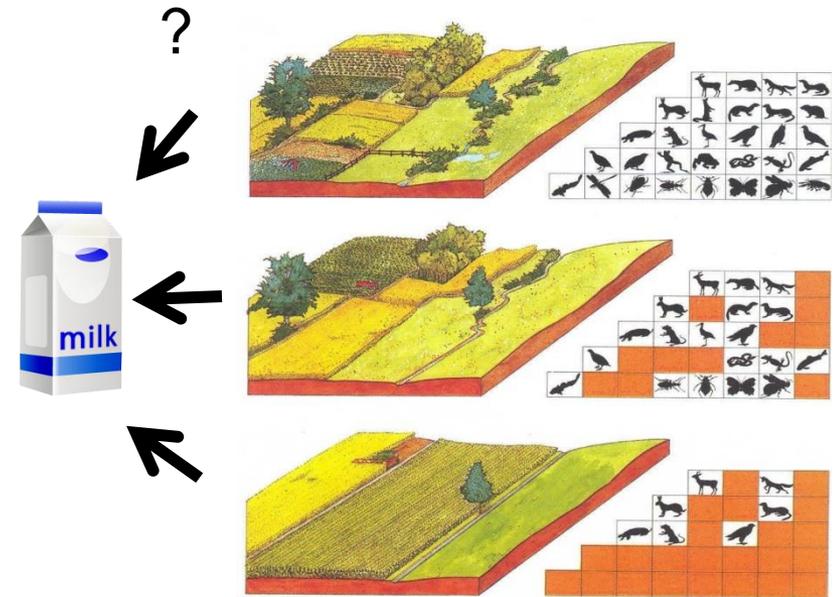
- Second goal of the method: compare land use scenarios for mosaic of habitats/fields or farms
  - Biodiversity scores are weighted by the area of the habitats/fields





# Facing and solving the problem: impact on biodiversity of producing agricultural goods

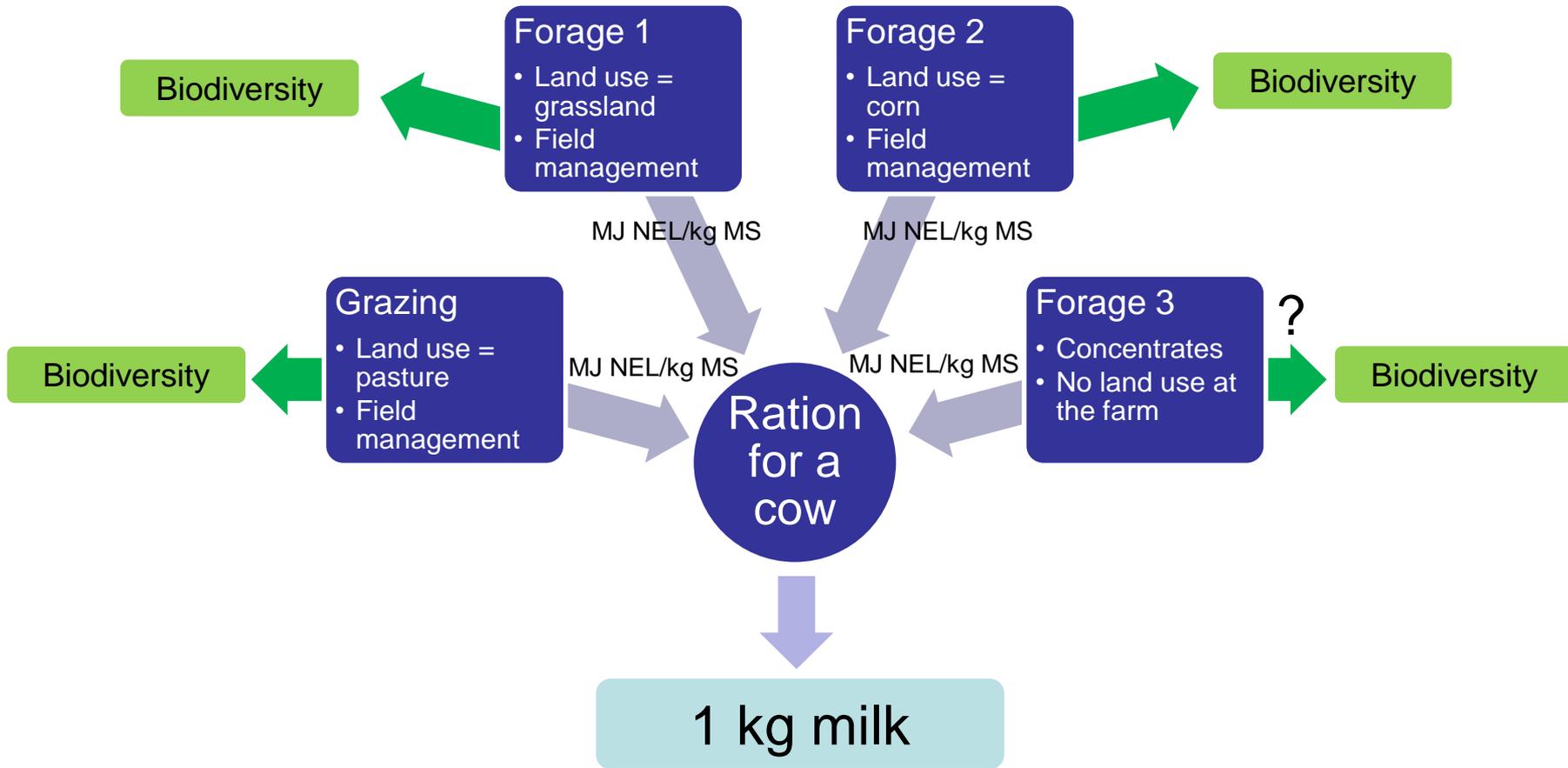
- SALCA-Biodiversity does not directly deliver scores for the impact of producing agricultural goods, e.g. 1kg milk;
- The impact of agriculture on biodiversity: the agricultural land use and the field management;
- Necessary: quantitative link between land use and field management, and the production of agricultural goods;
- Intermediate steps, models and assumptions may be necessary.



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# Milk production as example





# Outlook

- Impact of human activities on biodiversity needs detailed research,
- Main impact on biodiversity is caused by the land use (biodiversity  $\neq$  land use !),
- Steps and paths linking land use and production goods have to be established to estimate the impact of these on biodiversity.
  
- SALCA-Biodiversity score system has not been developed for special cultures, vegetables, vineyards and orchards.



# Thank you!



## ART – Research for Agriculture and Nature