Schweizerische Eidgenossenschaft
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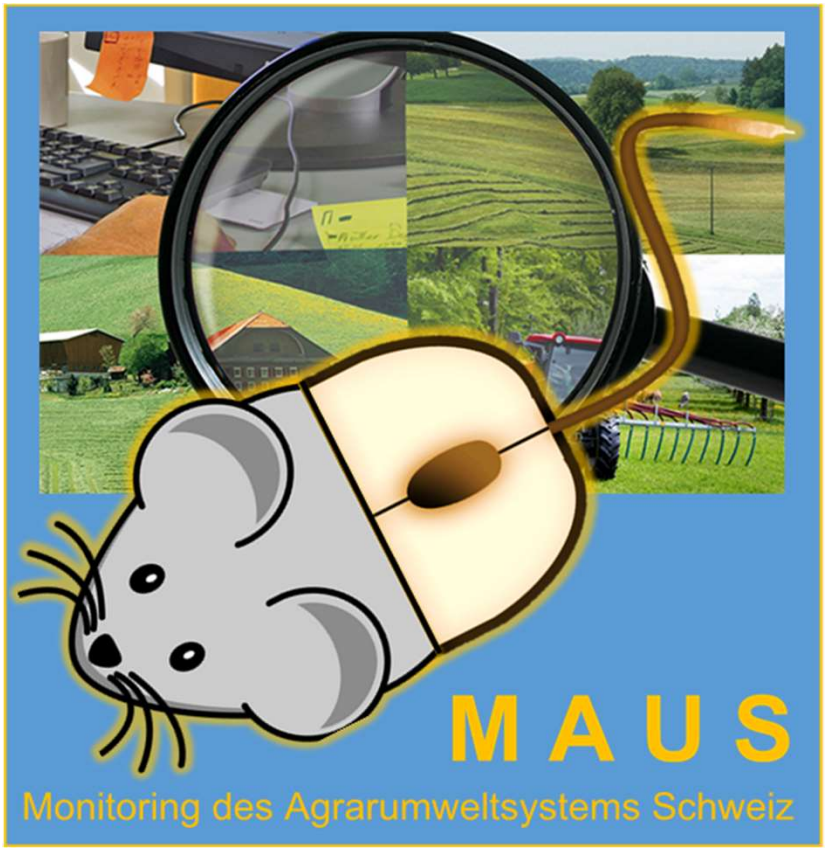
Federal Department of Economic Affairs,
Education and Research EAER

Agroscope

Tool to access field calendar data from farm management information systems (FMIS)



Anina Gilgen

07.10.2024

Agri-environmental monitoring of Switzerland

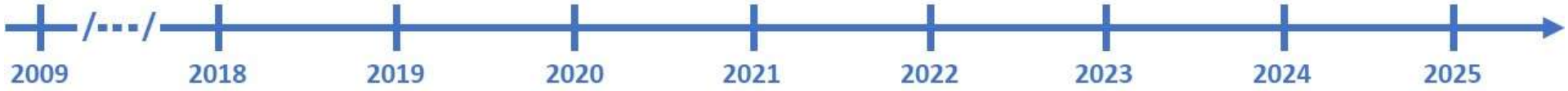
- **Data sources:**
  - Existing data sources (e.g. from the FOAG or producer associations) including digiFLUX when available
  - Data gathered by various agricultural software systems
  - Data gathered from online surveys
  - Interpreted satellite data

Conception | Realisation | Launch

MAUS
(Swiss Agri-Environmental Monitoring System)

SAEDN
(Swiss Agri-Environmental Data Network)

- **Data sources:**
  - All data from a network of approximately 300 farms
  - Data are collected using the same software tool (AGRO-TECH)
  - Data are supplied anonymously via trust agencies



Potential of FMIS for agri-environmental purposes

- Data already exists

→avoiding multiple surveys

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- Spatially and temporally **highly resolved** data

→Higher validity of the monitoring results

→Spatial intersection with other data sources (e.g. slope)

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- Which data?

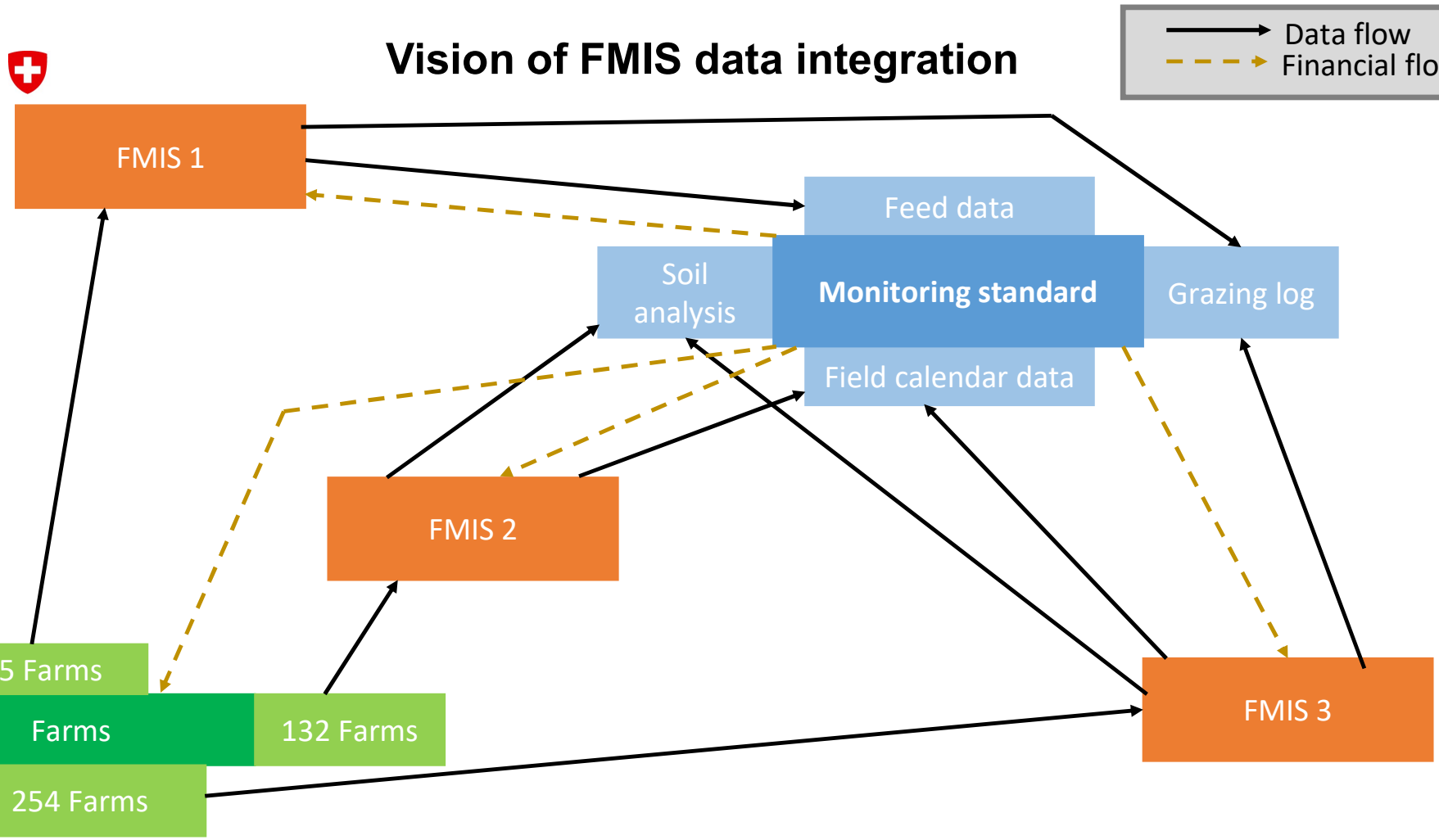
→E.g. grazing log, feed ration calculation, field calendar

→**Field calender:** all measures carried out on each field with date

Challenges when using FMIS data

1. **Access** to data (belongs to farmers)
2. Only a **few standardisations** in data
3. Data **gaps**: not all information in all FMIS available
4. Data **quality**
5. **Sample size**: only minority of farms currently use FMIS

Vision of FMIS data integration



Pilot project

- Project with FMIS «**barto**»
- Goal: test **standardisation and delivery** of data in one FMIS
- Focus: **field calender** data

→ So-called **MAUS module** was created for this purpose

Data standard (small extract)

Attribute	Farm ID	geometry	Date	Product quantity	Unit	Measure	Type of seeding
Explanation	Ktidb (cantonal farm ID). Delivery of sub farms possible.	Geometry of the field as a polygon. Reference frame: LV95. Only one crop may be present at any one time per field (exception: under-sowing).		Conversion to kg (for liquids m^3 = 1000 kg). If conversion to kg is not possible (e.g. pheromones), the original number is provided (with a different unit). For grassland harvests, the product quantity can be left blank.	Default kg. If not possible, deliver original unit.	Selection. Record of grazing measures (under harvest) voluntary.	Selection.
Unit	-		-	kg. In exceptional cases, 1:1 adoption.	-	-	-
Format	String	Polygon, Point, Linestring, Multipolygon	dd.mm.yyyy	Float	String, selection	String, selection	String, selection

Delivery concept

Farmer enters data in barto

barto powered by 365FarmNet

Farmer books MAUS module and specifies data

MAUS module transforms data to correct standard

Agroscope pays barto

Agroscope pays farmer

Agroscope uses data for agri-environmental monitoring and research

Attribute	Farm ID	geometry	Date	Product quantity	Unit	Measure	Type of seeding
Explanation	Ktidb (cantonal farm ID). Delivery of sub farms possible.	Geometry of the field as a polygon. Reference frame: LV95. Only one crop may be present at any one time per field (exception: under-sowing).		Conversion to kg (for liquids m^3 = 1000 kg). If conversion to kg is not possible (e.g. pheromones), the original number is provided (with a different unit). For grassland harvests, the product quantity can be left blank.	Default kg. If not possible, deliver original unit.	Selection. Record of grazing measures (under harvest) voluntary.	Selection.

Farmer sends data via module to Agroscope

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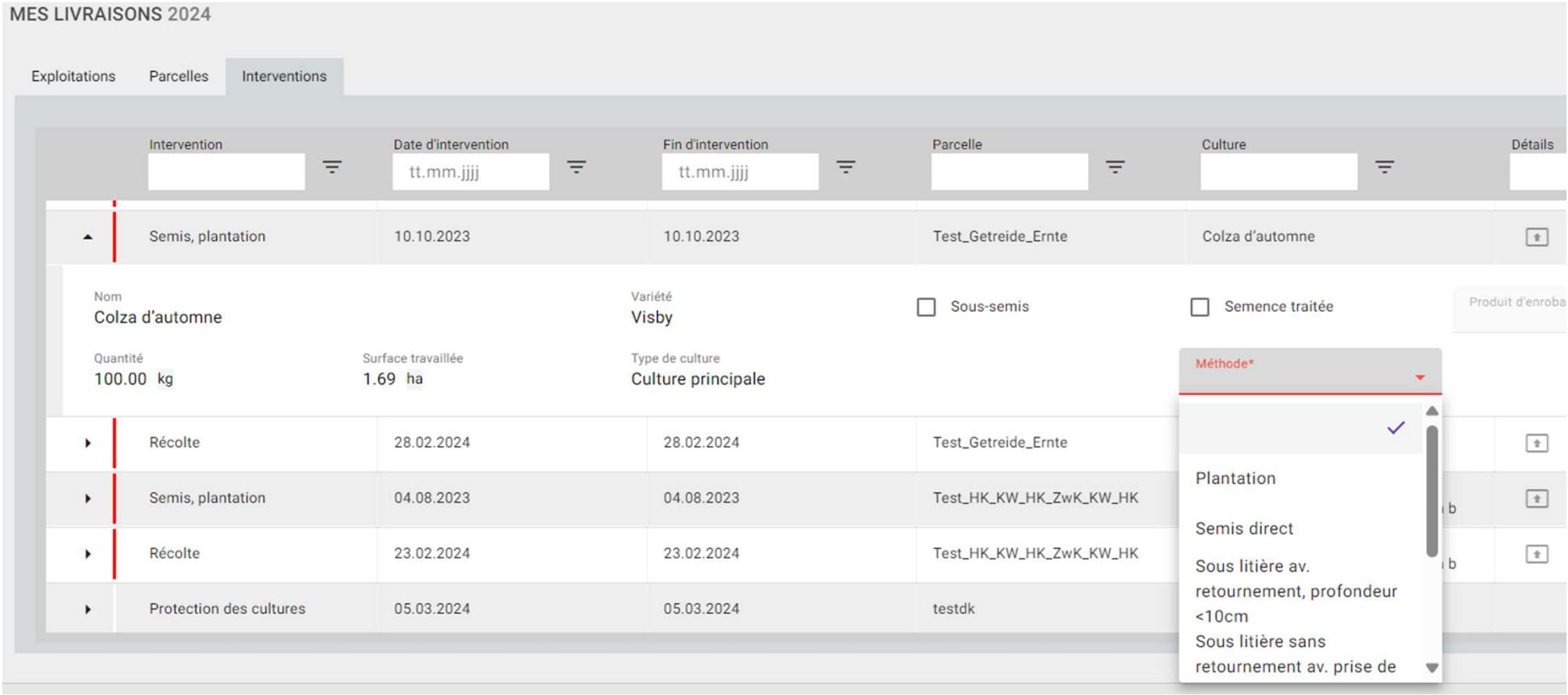
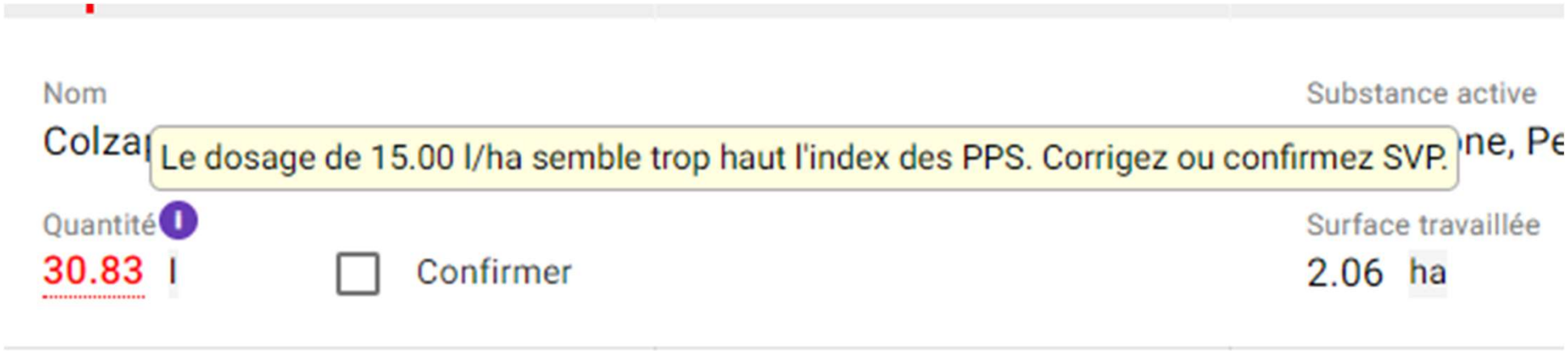
Screen shot of MAUS module within barto



Screen shot of automated data quality control within barto



Current state

- MAUS module was launched in barto in March 2024
- First farms delivered data, some technical issues needed to be resolved
- Now process started to transfer this process to other interested FMIS (WTO)

Challenges when using FMIS data

1. **Access** to data (belongs to farmers) → *voluntary delivery of data via own module in FMIS*
2. Only a **few standardisations** in data → *let FMIS module standardise data (provide reference)*
3. Data **gaps**: not all information in all FMIS available → *let FMIS module fill the gaps*
4. Data **quality** → *include automated data quality controls in FMIS module*
5. **Sample size**: only minority of farms currently use FMIS → *combine FMIS data with other data sources (e.g. satellite data, online surveys)*

Thank you for your attention!

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Agroscope good food, healthy environment

www.agroscope.admin.ch

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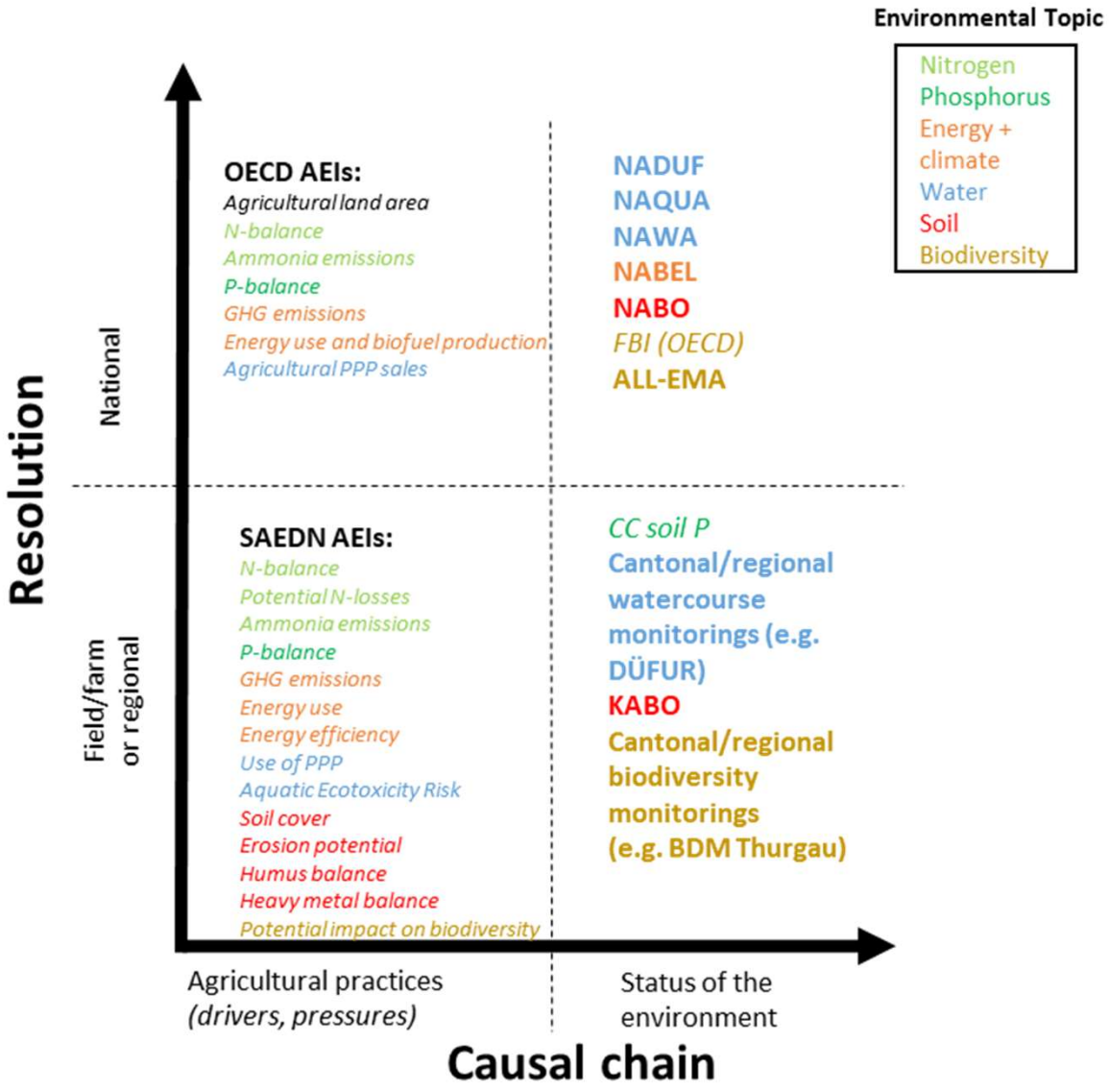
Environmental Topic
Nitrogen
Phosphorus
Energy + climate
Water
Soil
Biodiversity
Resolution
National
Field/farm or regional
OECD AEIs:
Agricultural land area
N-balance
Ammonia emissions
P-balance
GHG emissions
Energy use and biofuel production
Agricultural PPP sales
NADUF
NAQUA
NAWA
NABEL
NABO
FBI (OECD)
ALL-EMA
SAEDN AEIs:
N-balance
Potential N-losses
Ammonia emissions
P-balance
GHG emissions
Energy use
Energy efficiency
Use of PPP
Aquatic Ecotoxicity Risk
Soil cover
Erosion potential
Humus balance
Heavy metal balance
Potential impact on biodiversity
CC soil P
Cantonal/regional watercourse monitorings (e.g. DÜFUR)
KABO
Cantonal/regional biodiversity monitorings (e.g. BDM Thurgau)
Agricultural practices (drivers, pressures)
Status of the environment
Causal chain