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tomorrow's
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today

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Environmental Sustainability

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International*

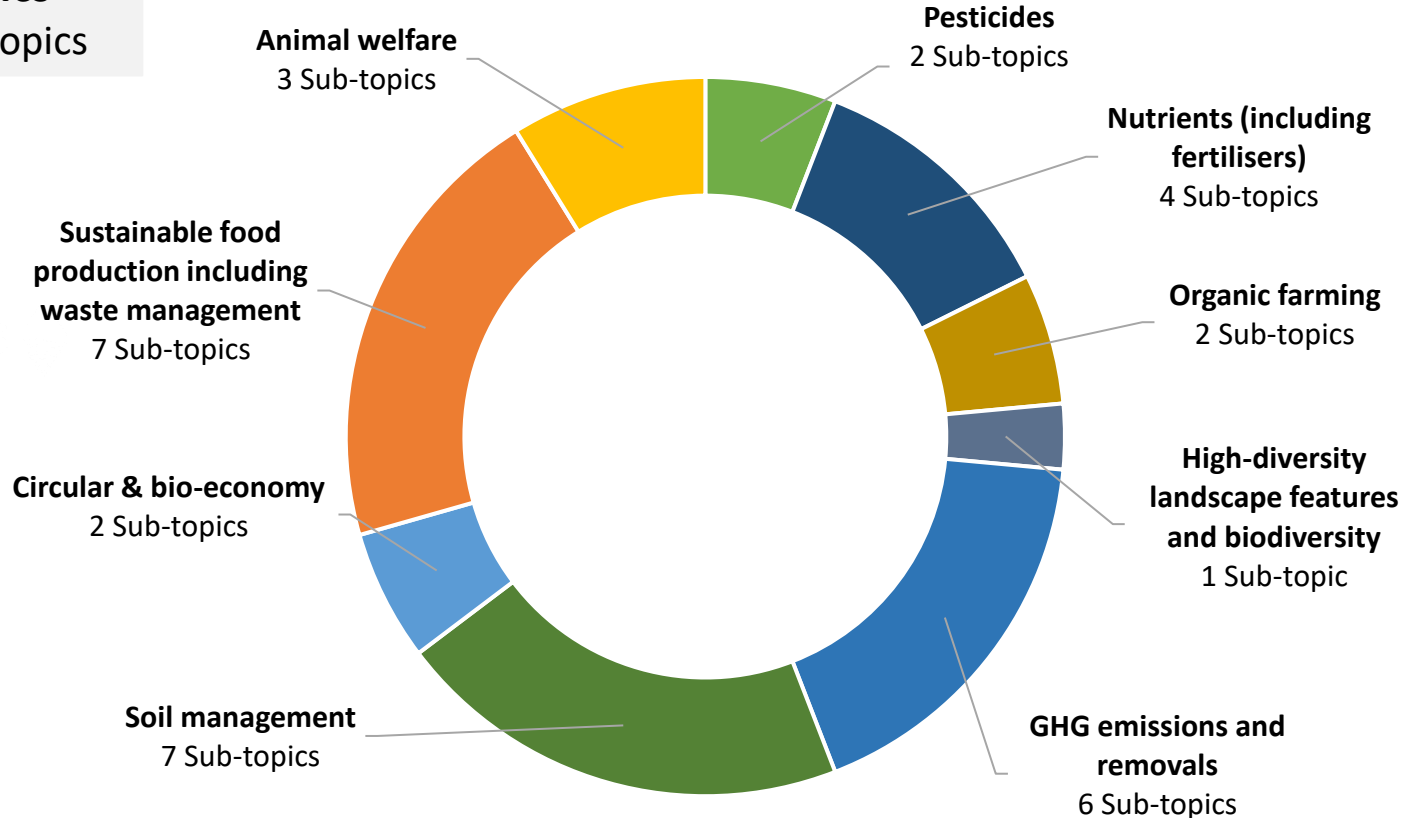
Definitions

- **Topic:** one of the 12 sustainability topics as presented in the Tender Specifications, plus 3 topics added in agreement with the Commission (other social topics, other economic topics, innovation and digitalisation). The topics are related to the 3 sustainability dimensions
- **Sub-topic:** specific dimension of a topic containing one or more variables
- **Variable:** characteristic of a unit (individuals/farm/crop) being observed that may assume more than one of a set of values to which a numerical measure or a category from a classification can be assigned
- **Category:** characteristics or typologies to consider when measuring the variable

Topics and identified sub-topics and variables

Environmental

9 Topics
34 sub-topics



Topic: Pesticides



Sub-topics – Variables – Categories

Sub-topic	Sub-topic description	Variable description	Categories	Granularity/ Frequency
<p>Pesticide use on the farm</p>	<p>Plant protection product use:</p> <ul style="list-style-type: none"> • dosage per active substance, • target/usage (herbicide, diseases, pest, others), • crop, • timing: vegetative stage of the crop, • (optional: equipment used). 	<p>Dose per active substance (gram/hectare)</p>	<ul style="list-style-type: none"> • Target/Usage; • Crop; • Vegetative stage of the crop at application time; • Equipment used (optional); • Parcel 	<ul style="list-style-type: none"> • Crop level; • Frequency <p>➤ data collected after each spraying</p> <p>➤ treatment details once a year</p>
<p>Pesticide use (biocontrol)</p>	<p>Use of biocontrol products and measures</p>	<ul style="list-style-type: none"> • Share of UAA on which biocontrol measures and/or biocontrol products are used at least once per year • Share of UAA on which biocontrol products other than pesticides were applied at least once a year (%) 		<ul style="list-style-type: none"> • Farm level • Yearly

Liaison Agencies' position on the collection of the sub-topics

■ *Already Collected* ■ *Small effort to collect* ■ *Significant effort to collect*



Issues in data collection & reporting



Operational Issues:

- Time-consuming since each product has to be registered with its type, content and usage for each crop



Technical Issues:

- Need to harmonise the data recording process (done through Implementing Regulation 2023/564)
- Farmers are not usually familiar with active substances (a.s.): risk of mistakes
- Biocontrol measures not standardised



Need to “align” the final decisions to the recent legal changes:

- SAIO Regulation
- Implementing Regulation (EU) 2023/564

E.g. moving from the recording of a.s. to the recording of commercial products + conversion to a.s. done by authorities/LAs via IT system (?)

BUT considering that macro-organisms and biocontrol measures are not included in the PPP package:

=> need to define a typology of “biocontrol measures”

Topic: Nutrients (including fertilisers)

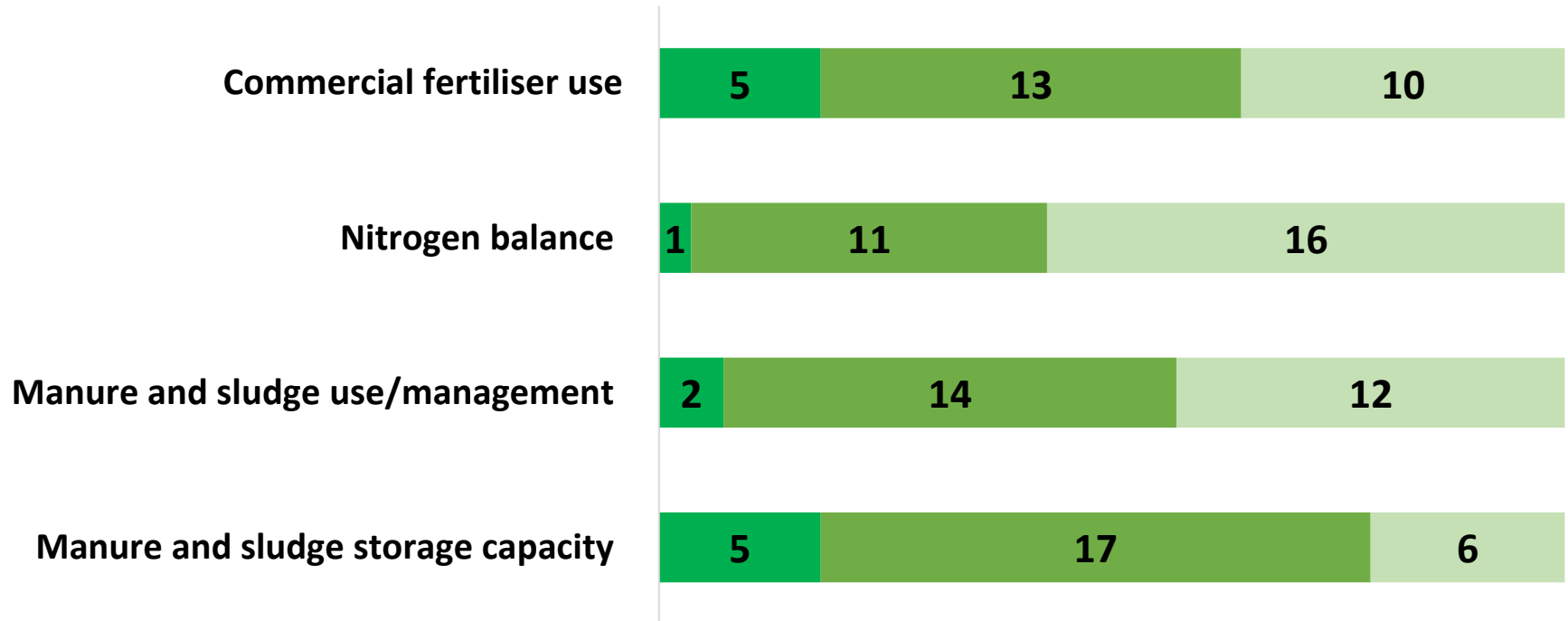


Sub-topics – Variables – Categories

Sub-topic	Sub-topic description	Variable description	Categories	Granularity / Frequency
Commercial fertiliser use	Commercial fertilisers used per crop	Average volumes (kg) of: <ul style="list-style-type: none"> • N units • P units • K units 	Crops	<ul style="list-style-type: none"> • Crop level • Yearly
Nitrogen balance	Input/output balance of any type of nutrient providers on an annual basis	<ul style="list-style-type: none"> • Units (kg) of N INPUT per crop, including commercial fertilisers and other sources of nitrogen • Units (kg) of N OUTPUT per crop based on estimated yield 		
Manure and sludge use/management	Manure and sludge corresponding N units applied to crops	Average N units (kg) from: <ul style="list-style-type: none"> • manure and sludge • slurry 	<ul style="list-style-type: none"> • <u>Normative</u> volumes of N content in sludge • <u>Normative</u> volumes of N content in manure • Crops 	
Manure and sludge storage capacity	Manure and sludge storage capacity	<ul style="list-style-type: none"> • Manure storage capacity • Sludge storage capacity 		

Liaison Agencies' position on the collection of the sub-topics

■ *Already collected* ■ *Small effort to collect* ■ *Significant effort to Collect*



Data source - Data collection methods

Feasible frequency



Feasible data sources:

- Farm accounts, farm records, including logbooks
- Public and private advisory services
- Use of census when available – limitation on the frequency



Feasible data collection methods:

- Farm surveys
- Farmers recording on paper/electronic format
- Extraction from other databases (crop management systems and applications for approval of production/subsidies/rental contracts)



Operational Issues:

- Time consuming for farmers to collect mainly nutrient balance per farm



Technical Issues:

- Nitrogen balance data can be complex to estimate due to the difficulties in measuring nitrogen output
- Normative values are not harmonised (issues in comparing data)



- Instead of measuring nitrogen output, use normative data based on yield estimates

- Farmers could be provided with a standardised framework, guideline, or online tool to estimate nitrogen output values

Topic: Organic farming



Sub-topic	Sub-topic description	Variable description	Categories	Granularity / Frequency
Share of organic products produced on the farm	Share of volumes/value of farm output sold as organic	Share of volume of output sold as organic on a yearly basis (in %) (9 variables needed to calculate this ratio)	Products sold	<ul style="list-style-type: none"> • Farm Level • Yearly
Pesticide use in organic farming	Plant protection product use in organic farming: <ul style="list-style-type: none"> • dosage per active substance, • target/usage (herbicide, diseases, pest, others), • crop, • timing: vegetative stage of the crop, • (optional: equipment used). 	Dose per active substance	<ul style="list-style-type: none"> • Target/Usage • Crop • Vegetative stage of the crop at application time • Equipment used (optional) • Parcel 	<ul style="list-style-type: none"> • Farm level • Yearly

Liaison Agencies' position on the collection of the topics

■ *Already collected* ■ *Small effort to collect* ■ *Significant effort to Collect*

Share of organic products produced on the farm



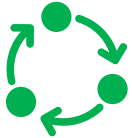
Pesticide use in organic farming





Feasible data sources:

- Farm accounts, farm records, including logbooks
- Farm surveys
- Advisory services
- Extraction from other databases



Feasible data collection methods:

- Farmers recording on paper/electronic format



Operational Issues:

- Same as pesticide use



Technical Issues:

- Difficult to collect the share of organic products from farms that sell only part of their products as organic or when the same crop is only partially sold as certified organic
- Difficult to aggregate all records related to organic selling. Even if data are available electronically, data aggregation will have to be done manually



- Pesticide use: same as pesticide topic
- Share of organic products produced on the farm: move from a “calculation approach” to an “estimation approach”

***Topic: High-diversity
landscape features and
biodiversity (including soil
biodiversity)***



Sub-topic	Sub-topic description	Variable description		Granularity
<p>High-diversity landscape features on the farm</p>	<p>Total area of landscape features favourable for biodiversity on farm (ha)</p>	<ul style="list-style-type: none"> • Terraces on sloping land • Hedgerows • Field margins (grass, shrub or grove) • Buffer strips • Strips along forest edges • Lines of trees • Trees in groups 	<ul style="list-style-type: none"> • <i>Isolated single trees (number)</i> • Ditches • Ponds and streams • Small wetlands • Patches • Cairns or similar objects • Stone walls 	<p>Farm level</p>

Liaison Agencies position on the collection of the sub-topics

■ *Already collected* ■ *Small effort to collect* ■ *Significant effort to collect*

High-diversity landscape features on the farm

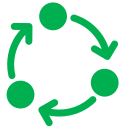


Data source - Data collection methods Feasible frequency



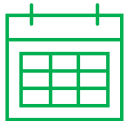
Feasible data sources:

- Farm accounts, farm records, including logbooks
- IACS
- Extraction from other databases



Feasible data collection methods:

- Farmers recording on paper/electronic format



Feasible frequency of data collection:

- Every 3 to 5 years



Operational Issues:

- Long list of variables raising the burden



Technical Issues:

- Difficult to measure, extract and reconstitute data
- Complicated to record highly detailed information through interviews. How can the interviewer validate the variables?



- Reduce the number of variables to 4-5 max. (select the ones that seem the most significant for addressing the topic)
- It is advisable not to collect data at an overly detailed level. Perhaps approximations/estimation, such as those for buffer strips, would be more appropriate than precise calculations.

***Topic: Greenhouse
gases (GHG) emissions
and removals***



Sub-topics – Variables – Categories

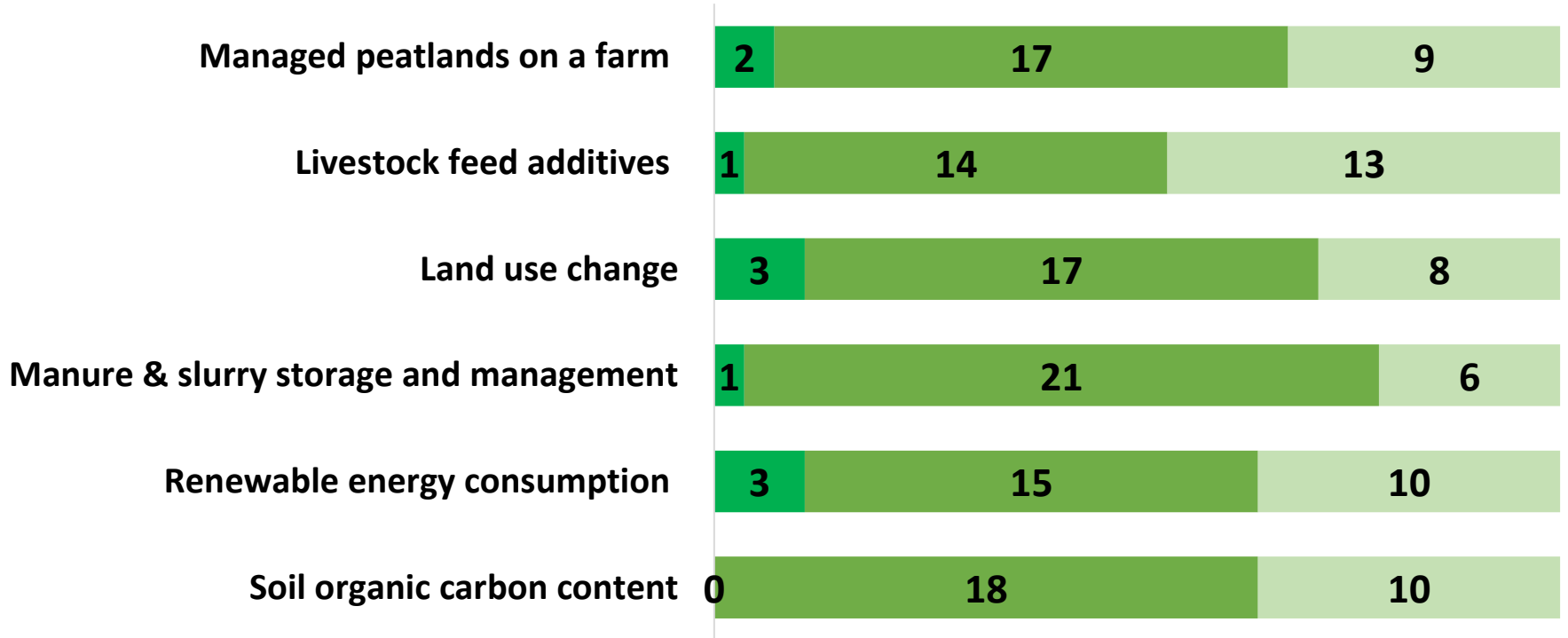
Sub-topic	Sub-topic description	Variable description	Categories	Granularity/ Frequency
Managed peatlands on a farm	Area and type of managed peatlands on a farm	Area of farmed peatland (ha)	<ul style="list-style-type: none"> • Crop system under peatland • Crop under peatland 	<ul style="list-style-type: none"> • Farm level • Every 3-5 years
Livestock feed additives	Use of livestock feed additives	<ul style="list-style-type: none"> • Name of active ingredient • Dosage 	Type of livestock	<ul style="list-style-type: none"> • Farm level • Yearly
Land use change	Land use changes within a farm which have had a positive or a negative impact on GHG emissions	<ul style="list-style-type: none"> • Area converted from arable land to grassland/forest/peatland • Area converted from grassland/forest/peatland to arable land within a farm 		<ul style="list-style-type: none"> • Farm level • Every 3-5 years

Sub-topics – Variables – Categories

Sub-topic	Sub-topic description	Variable description	Categories	Granularity/ Frequency
Manure & slurry storage and management	Manure and slurry management techniques and type of storage, consisting of two parts: a) size and type of storage of slurry and solid manure; b) whether the slurry is treated	<ul style="list-style-type: none"> Storage capacity for slurry/ liquid manure (m³) Storage capacity for solid manure (m²) 	<ul style="list-style-type: none"> Type of storage Cover type Slurry type and treatment 	<ul style="list-style-type: none"> Farm level Yearly
Renewable energy consumption	Share of renewable energy consumption (including own-produced and purchased renewable energy)	<ul style="list-style-type: none"> Total energy consumption On-farm renewable energy production Share of purchased consumption of renewable fuels for heating Share of purchased electricity from renewable sources Share of purchased bio-based fuels 		
Soil organic carbon content	Soil organic carbon content of individual parcels	Soil organic carbon	<ul style="list-style-type: none"> Sampling depth Land use type 	<ul style="list-style-type: none"> Parcel level Every 5 years

Liaison Agencies' position on the collection of the sub-topics

■ *Already collected*
 ■ *Small effort to collect*
 ■ *Significant effort to collect*





Feasible data sources:

- Farm accounts, farm records, including logbooks
- Public and Private Advisory services
- LULUCF sourced from the Ministry and National census
- Environmental, Social and Governance reports and IACS



Feasible data collection methods:

- Farmers recording on paper/electronic format/survey

Issues in data collection & reporting



Operational Issues:

- High burden of data collection
- Unwillingness of farmers to collect more data
- The cost of repeated soil analysis for determining the soil carbon content can be high when considering numerous plots



Technical Issues:

- Data on manure can lack precision (e.g. N, P, K content from organic non-commercial sources)
- The definition of farmed peatland is unclear
- Share of renewable energy purchased is difficult to determine



- Reduce the number of variables
- Provide clear incentives for farmers to collect and share the data
- Data on land use change could be taken from the direct payment applications for grass- and croplands
- Including the managed peatlands on a farm in the IACS and LPIS

Topic: Soil management

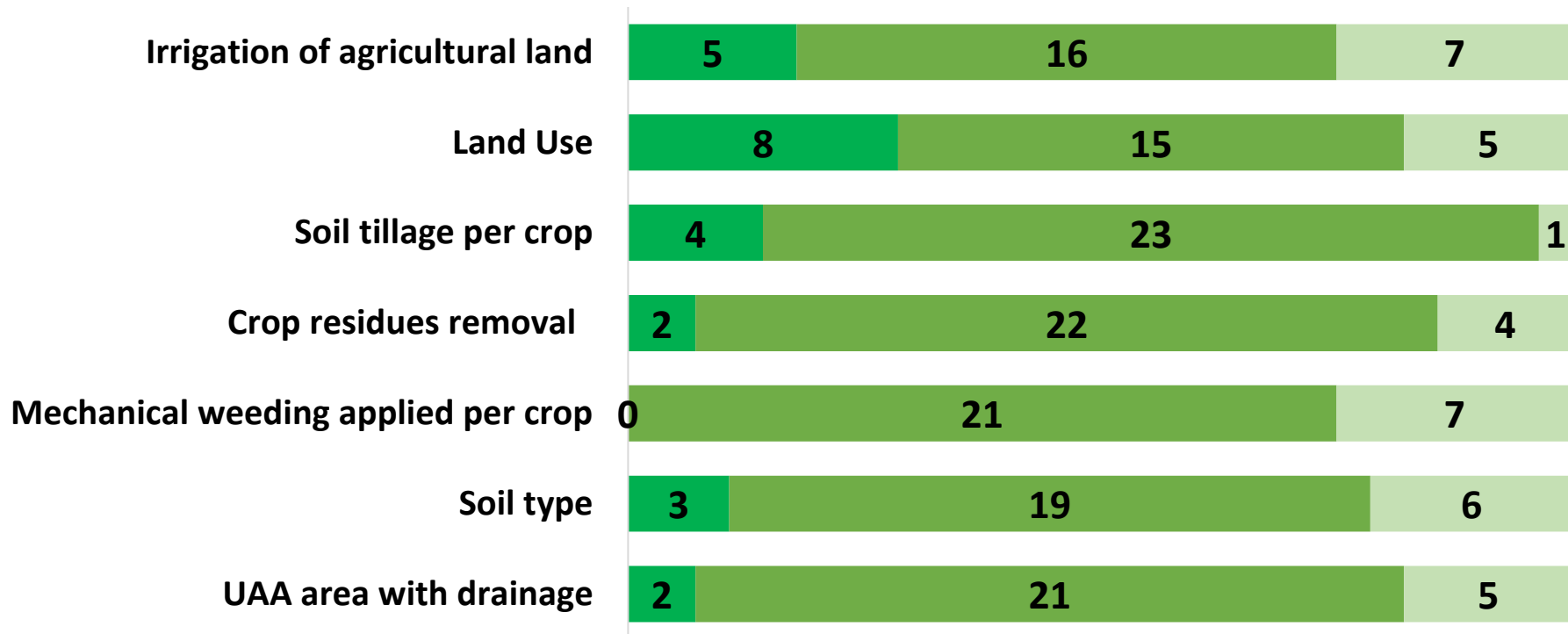


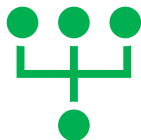
Sub-topic	Sub-topic description	Variable description	Categories	Granularity/ Frequency
Irrigation of agricultural land	Amount of water applied through irrigation for each season and for each crop	Average amount of water applied through irrigation (m ³ /ha)	<ul style="list-style-type: none"> Type of irrigation Crop Season 	<ul style="list-style-type: none"> Crop level Yearly
Land use	Record keeping of crops sown/planted/grown, cultivars, and corresponding surfaces, including cover crops	<ul style="list-style-type: none"> Area sown/planted/grown Area sown/planted/grown with a cover crop before the crop Crop cultivated before each crop (excluding cover crops, only harvested crops) 	<ul style="list-style-type: none"> Cultivars name of crop sown/planted/grown for the crop Crop 	<ul style="list-style-type: none"> Farm level Yearly
Soil tillage per crop	Soil tillage practice per crop	Arable UAA under: <ul style="list-style-type: none"> no till shallow till conventional till: deep tillage WITH soil inversion conventional till: deep tillage without soil inversion 	<ul style="list-style-type: none"> Crop 	<ul style="list-style-type: none"> Crop level Yearly

Sub-topic	Sub-topic description	Variable description	Categories	Granularity/ Frequency
Crop residues removal	Management of crop residues after harvest – residues can be either removed or left on/incorporated into the soil	Area from which crop residues have been removed	Crop	<ul style="list-style-type: none"> • Crop level • Yearly
Mechanical weeding applied per crop	Intensity of mechanical weeding for each crop, depending on (i) the number of paths; (ii) the proportion of soil surface weeded by the weeding equipment	<ul style="list-style-type: none"> • Average number of paths of mechanical weeding per crop • Average proportion of soil surface weeded by the weeding equipment 		
Soil type	Soil type per parcel	Description of soil type/texture from soil analysis using the soil triangle specification		<ul style="list-style-type: none"> • Every 5 years
UAA area with drainage	UAA area that has drainage, by type of land (grassland, cropland, peatland, etc.)	UAA with drainage	Land cover	

Liaison Agencies' position on the collection of the sub-topics

■ *Already collected* ■ *Small effort to collect* ■ *Significant effort to collect*





Operational Issues:

- High burden of data collection for such a long list of variables
- Unwillingness of farmers to collect more data
- Tracking the volume of water used where there are restrictions can be a sensitive issue
- Potentially high cost of soil analysis



Technical Issues:

- Typology of crop residue needed



Feasible data sources:

- Farm accounts, farm records, including logbooks
- Public and private advisory services
- FSS and IACS
- Crop management system



Feasible data collection methods:

- Farmers recording on paper/electronic format/survey



- Allow estimation rather than calculation for most variables (e.g. water used for irrigation)
- Soil type data could be taken from soil maps if link to parcel level can be established

Topic: Circular & bioeconomy



Sub-topic	Sub-topic description	Variable description	Categories	Granularity/ Frequency
Quantity of slurry and manure imported into and exported from the farm	Quantity of manure and slurry imported into the farm (purchased or for free, excluding commercial fertilisers) and quantity exported out of the farm	<ul style="list-style-type: none"> • Amount of manure imported into the farm (purchased or for free, excluding commercial fertilisers) and corresponding N and P content • Amount of slurry imported into the farm (purchased or for free, excluding commercial fertilisers) and corresponding N and P content • Amount of manure exported out of the farm (sold or for free) and corresponding N and P content • Amount of slurry exported out of the farm (sold or for free) and corresponding N and P content 	<ul style="list-style-type: none"> • Type of manure • Type of slurry 	<ul style="list-style-type: none"> • Farm level • Yearly
Energy produced on the farm	Amount of energy (electricity, and heat) produced on the farm	<ul style="list-style-type: none"> • Amount of electricity (kWh) • Amount of heat (MJ) 		

Liaison Agencies' position on the collection of the sub-topics

■ *Already collected* ■ *Small effort to collect* ■ *Significant effort to collect*

Quantity of slurry and manure imported into and exported from the farm



Energy produced on the farm





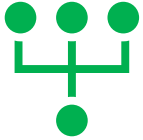
Feasible data sources:

- Farm accounts, farm records, including logbooks and energy network provider
- Public and private accounting firms



Feasible data collection methods:

- Farmers recording on paper/electronic format/survey



Operational Issues:

- High burden of data collection
- Unwillingness of farmers to collect or share data, e.g. for fear of non-compliance with existing legislation on the quantity of slurry imported to and exported from the farm



Technical Issues:

- Recording the quantity of slurry and manure is not easy
- Energy produced on farms in terms of using biomass for heat (self-consumption) is not commonly recorded



- Use estimations rather than calculations

***Topic: Sustainable food
production
including waste management***



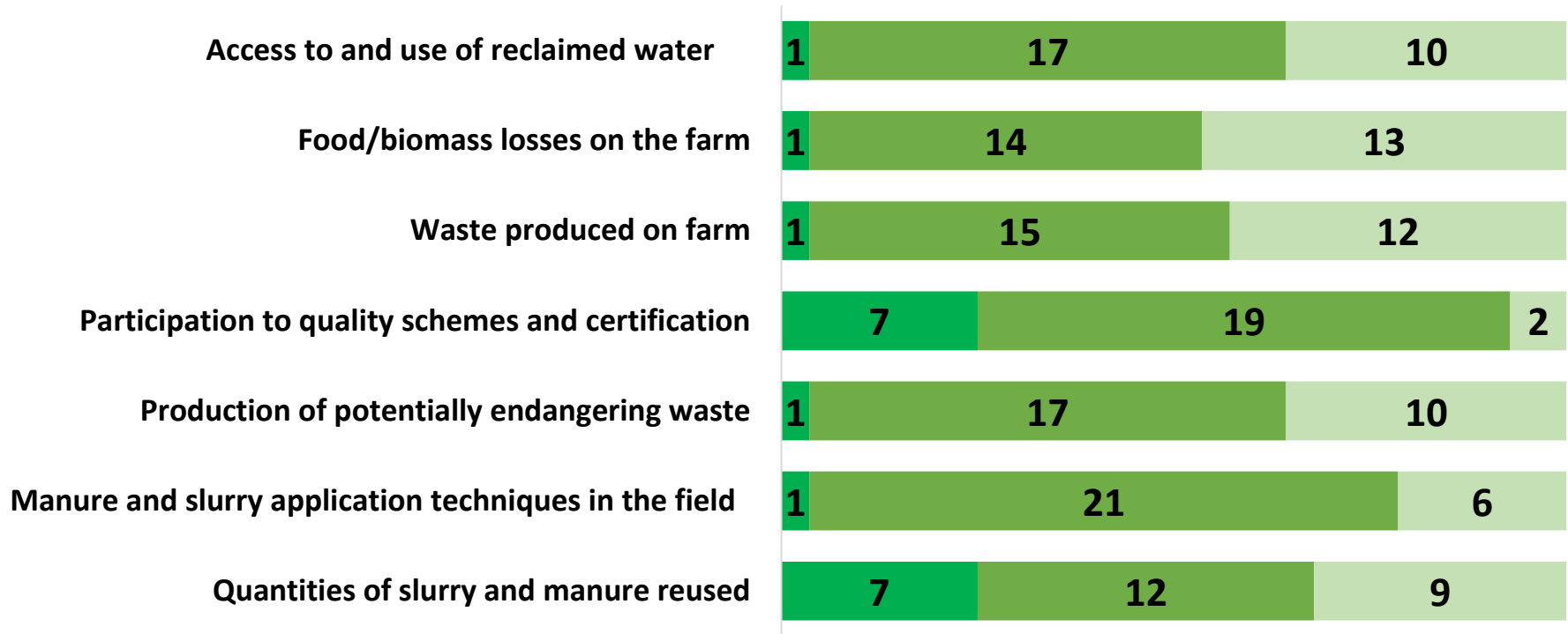
Sub-topic	Sub-topic description	Variable description	Categories	Granularity/ Frequency
Quantities of slurry and manure reused	Quantities of slurry and manure produced in the farm reused on the field	<ul style="list-style-type: none"> Amount of manure produced on the farm and reused Amount of slurry produced on the farm and reused 	<ul style="list-style-type: none"> Type of manure N and P content 	<ul style="list-style-type: none"> Farm level Yearly
Manure and slurry application techniques in the field	Manure and slurry application techniques in the field	<ul style="list-style-type: none"> Share of total UAA on which application took place for each application technique (annual basis) Area treated with type of application technique (annual basis) Total UUA 	Type of application technique	
Production of potentially endangering waste	Production of potentially endangering waste per year on the farm	Quantity of potentially endangered waste (all categories included)	List of products which are considered endangering waste	
Participation to quality schemes and certification	Participation to quality schemes and certification (yes/no) by type of scheme	Participation to quality schemes	Typology of schemes	

Sub-topic	Sub-topic description	Variable description	Categories	Granularity/ Frequency
Waste produced on farm	Quantities of waste produced on farm (slurry, manure, waste water)	<ul style="list-style-type: none"> Quantity of slurry Quantity of manure Number of animals Quantity of wastewater produced 	<ul style="list-style-type: none"> Excretion factors slurry and manure per animal Animal species 	<ul style="list-style-type: none"> Farm level Yearly
Food/biomass losses on the farm	Share of total biomass losses on the farm in value and volume	<ul style="list-style-type: none"> Share of volume of biomass losses Share of value of total crop biomass losses on a yearly basis 	<ul style="list-style-type: none"> Growing Harvest Transport Processing Storing Selling 	
Access to and use of reclaimed water	Access to reclaimed water and use of reclaimed water in agricultural irrigation	<ul style="list-style-type: none"> Access to reclaimed water Share of reclaimed water on used water on the farm on a yearly basis 		

Sustainable food production

Liaison Agencies' position on the collection of the sub-topics

■ *Already collected* ■ *Small effort to collect* ■ *Significant effort to Collect*





Feasible data sources:

- Farm accounts, farm records, including logbooks
- Public and private accounting firms



Feasible data collection methods:

- Farmers recording on paper/electronic format/survey



Operational Issues:

- High burden of data collection due to large number of variables



Technical Issues:

- Difficulties even to estimate volumes of some variables



- Use estimations rather than calculations for most of the variables
- Reduce the number of variable to 3-4 max

Topic: Animal welfare

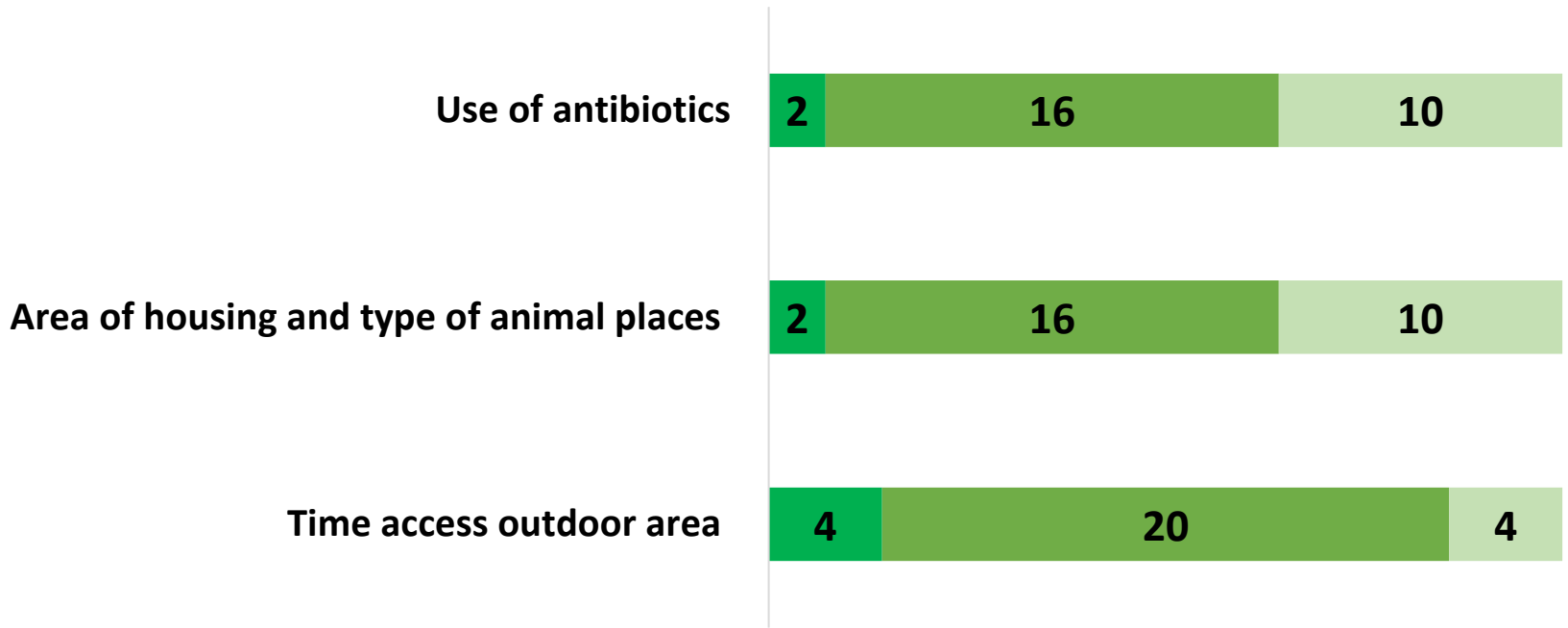


Sub-topics – Variables – Categories

Sub-topic	Sub-topic description	Variable description	Categories	Granularity/Frequency
Use of antibiotics	Use of antibiotics per species of animal and product	Total quantity of active ingredients (mg)	<ul style="list-style-type: none"> • Normative weight of animals • Animal species • Type of active ingredient 	<ul style="list-style-type: none"> • Farm level • Yearly
Area of housing and type of animal places	Area of housing and animal places by animal species and type of housing	<ul style="list-style-type: none"> • Animal density • Number of animals • Number of animal places 	<ul style="list-style-type: none"> • Animal species • Type of housing 	
Time access outdoor area	Time animals have access to outdoor areas (including grazing time)	Time access outdoor area	<ul style="list-style-type: none"> • Type of outdoor areas • Grazing time • Animal species 	

Liaison Agencies position on the collection of the sub-topics

■ *Already collected* ■ *Small effort to collect* ■ *Significant effort to collect*





Feasible data sources:

- Farm accounts, farm records, including logbooks
- Pharmacy/veterinaries/census/IACS



Feasible data collection methods:

- Farmers recording on paper/electronic format/survey



Operational Issues:

- Fragmented databases per livestock sector or no central registration
- Data on the use of antibiotics is often kept with the veterinarian not the farmer



Technical Issues:

- Data on time that animals spend outside is not invoice-based, there may be an issue with farmer recall for dates
- High number of details required for data on the area of housing and type of animal places



- Collect estimations rather than calculations
- Facilitate access to veterinary records on antibiotic use and integrate the data into a national register