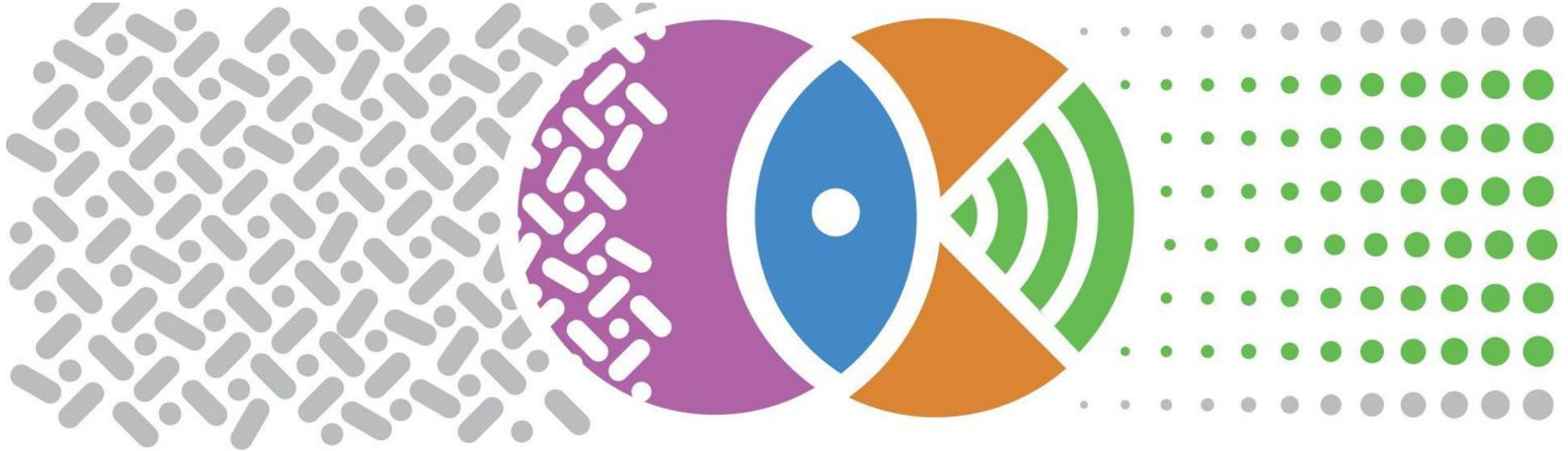




Food and Agriculture
Organization of the
United Nations

International FAO
Antimicrobial Resistance
Monitoring (InFARM) System



WHONET – InFARM Webinar

21 October 2026

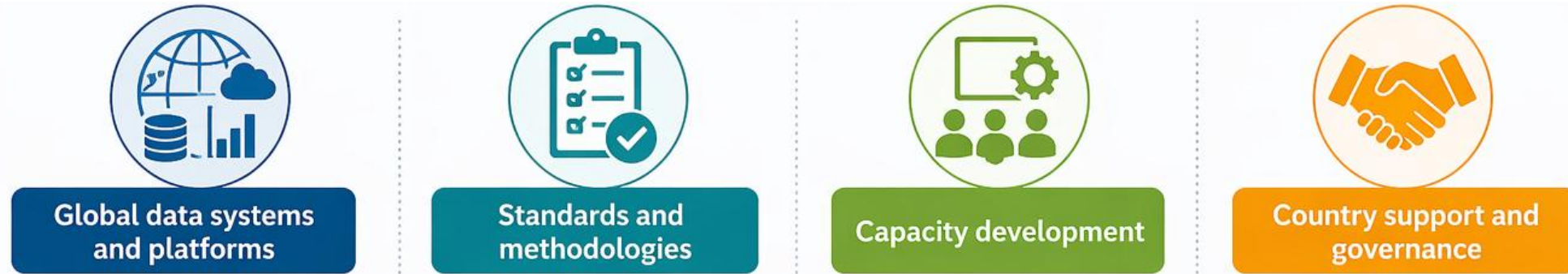
Outline

- What is InFARM
 - InFARM system
 - The InFARM AMR surveillance framework
 - 2025 Early Implementation Report overview
- Preliminary global summary of 2025 InFARM submissions
- Participation in the third InFARM open call for data

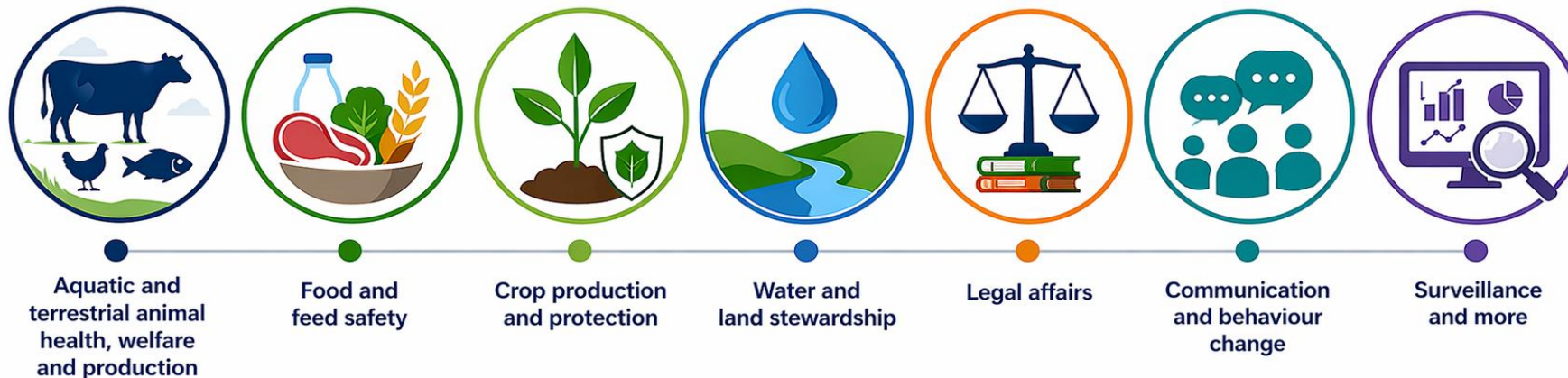


From mandate to delivery

FAO has a constitutional mandate to collect, analyze and disseminate information and delivers on its mandate for information through...



And across multiple domains following a One Health approach...



FAO's support to AMR/U surveillance through public global goods

The InFARM system surveillance approach

- Global information system composed of:



- **Digital IT platform**

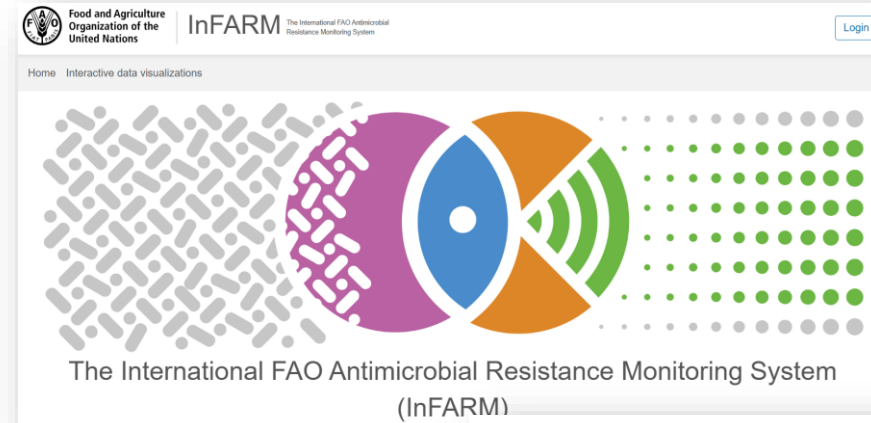
Global reporting and visualization



- **Capacity building activities**

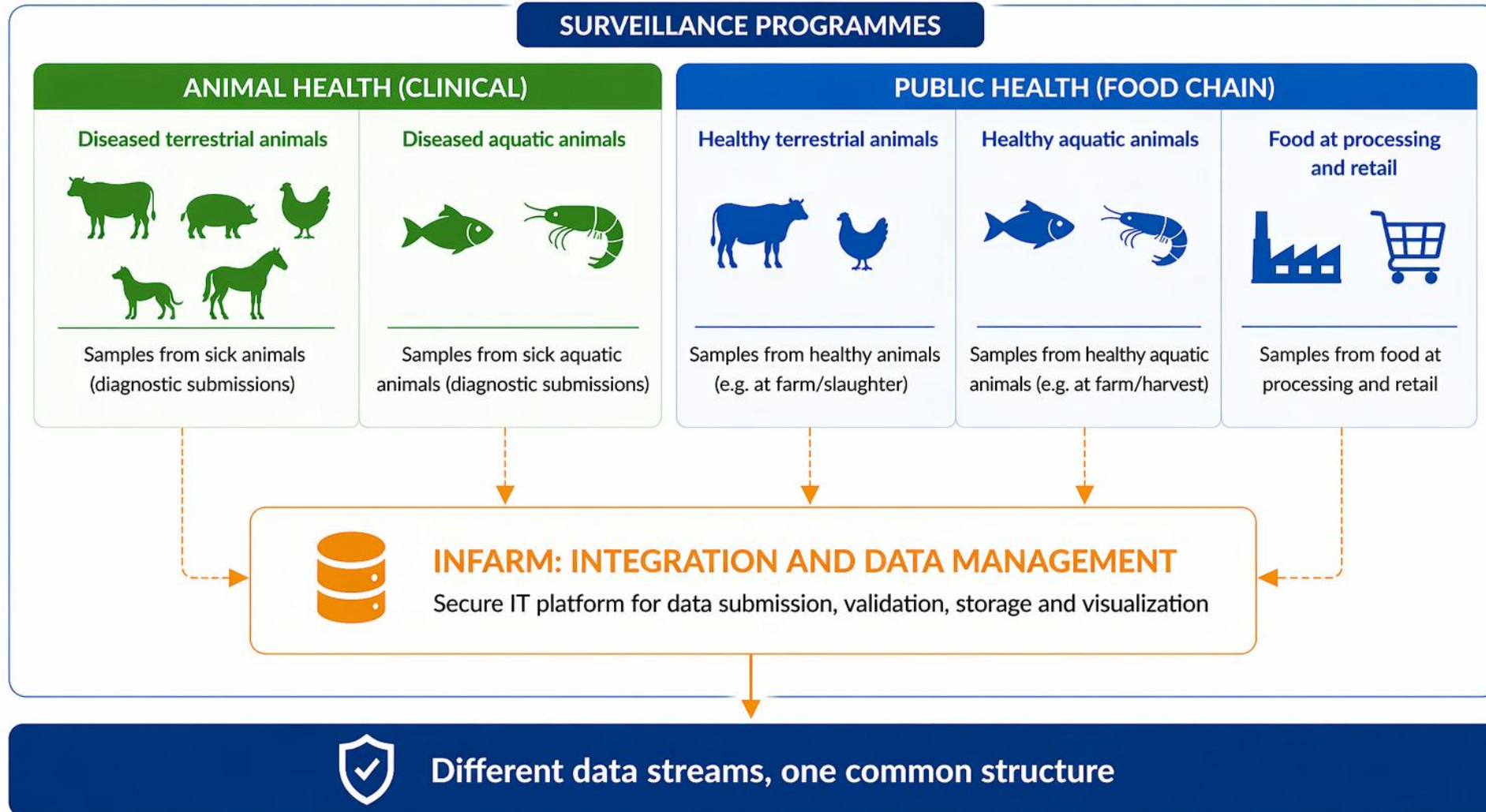
National generation, collection, collation, analysis and use of data

- Focus on AMR in animal populations and food and AMU in plants



The International FAO AMR Monitoring (InFARM) System and IT platform

A structured approach to collate and integrate AMR data from multiple sources



The International FAO AMR Monitoring (InFARM) System and IT platform

Enabling the use of data to decision-making



The InFARM early implementation report (2023-2024)

Full report



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Highlights



Food and Agriculture
Organization of the
United Nations

Report on early implementation of the InFARM system (2023-2024)

Highlights

The first report on the early implementation of the International FAO Antimicrobial Resistance Monitoring (InFARM) System, covering 2023-2024, has been published by the Food and Agriculture Organization of the United Nations (FAO). During this period, the system was piloted, validated and launched globally, with guidance developed, trainings delivered and the first open call for AMR data completed.

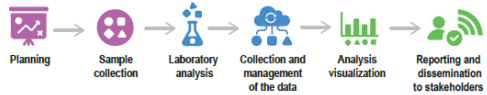
The report provides a global overview of AMR surveillance across InFARM programmes, highlighting key achievements, challenges and priorities for strengthening capacities. This brochure presents its key findings.

InFARM is FAO's global system supporting countries in monitoring AMR in animals, food and production environments through harmonized data collection and reporting, while strengthening national surveillance systems and preserving country ownership of data to inform evidence-based action.

Why monitoring and surveillance of antimicrobial resistance matters?

Monitoring and surveillance of AMR are essential to understand how resistant bacteria emerge, spread and evolve across animal populations and food systems. Without reliable and comparable data, countries cannot detect trends, assess risks or guide responsible antimicrobial use.

Strong surveillance systems provide the evidence needed to inform policies and interventions, protect animal health and food safety, preserve the effectiveness of antimicrobials, and reduce the economic and public health impacts of AMR.





InFARM provides:

- A harmonized global framework for AMR surveillance in animals and food
- Standardized surveillance guidance aligned with Codex and WHO
- An IT platform with flexible confidentiality levels
- Automated analysis at national, regional and global levels
- Technical support and capacity development
- Provide data for integration under a One Health approach

The InFARM early implementation report (2023-2024)

Status of implementation of AMR surveillance activities

Healthy terrestrial animals (poultry, cattle and pigs) represent the largest share of surveillance programme questionnaire submissions, reflecting long-standing global investment in food-animal monitoring & surveillance for public health.



The InFARM early implementation report (2023-2024)

The main bottlenecks are quality assurance, epidemiology, data analysis, communication, and sustainability of national surveillance activities

National governance and system foundations

42% of Countries with government-approved, operational and funded AMR surveillance programme



National Coordinating Centre (**NCC**)

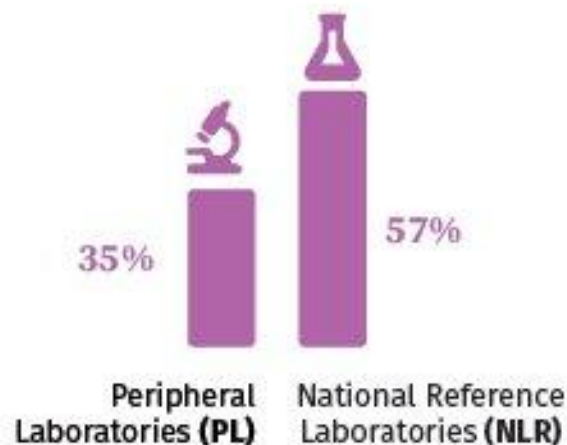
Peripheral Laboratories (**PL**)

National Reference Laboratories (**NLR**)

49% of Countries have all three core components

Quality assurance in laboratory testing

remains uneven, especially at peripheral level



Epidemiology practices

Heterogeneous reporting of Antimicrobial Susceptibility Testing (AST) results partially aligned with international guidance

Already interpreted AST results **57%**

Raw quantitative AST results **59%**

Limited reporting and communication of AMR surveillance results

57% of Countries disseminate AMR surveillance results, but 43% still report no dissemination.

Characteristics of the AMR data received, challenges and opportunities

AMR data received

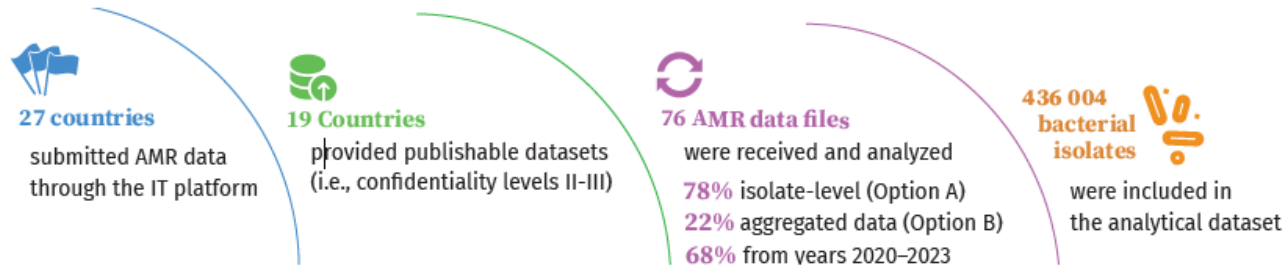
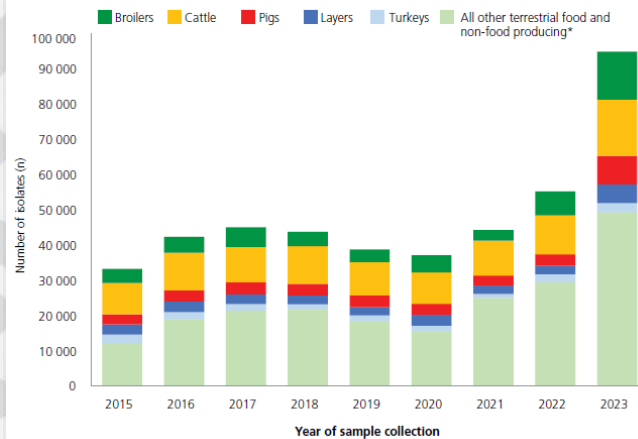
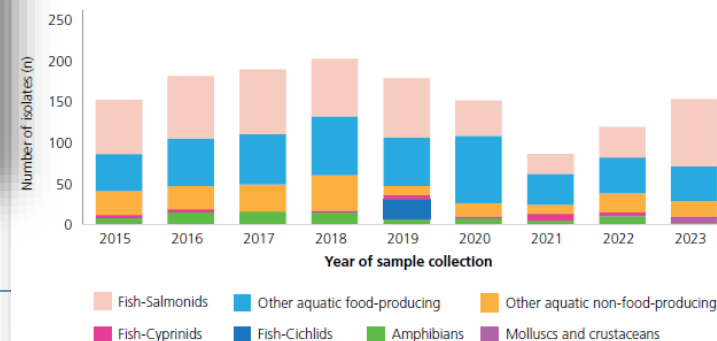


Figure 6
Distribution of AST results by year of sample collection, InFARM annual call for data, 2024
a. Terrestrial animals, food- and non-food producing animals



Results from early implementation are descriptive and do not yet support robust AMR prevalence or trend analysis, due to variations in statistical representativeness, sampling design and data coverage.

b. Aquatic animals, including food- and non-food producing and amphibians



Challenges and opportunities for scaling up

The 2023–2024 initial implementation phase of the InFARM system marked its transition from concept to operation, showing that countries at different levels of surveillance maturity can harmonize and report AMR data from animal populations and food systems.

The first global open call in 2024 provided key insights into existing surveillance structures, available data, and the systemic, technical, and institutional gaps that must be addressed to produce reliable national and global AMR estimates.

CHALLENGES IDENTIFIED (2023–2024)

SCALE-UP PRIORITIES (2025–2027)



Fragmented surveillance and governance

- ▶ Limited coordination between national bodies and laboratories
- ▶ Insufficient funding and staff

Strengthen national coordination mechanisms

- ▶ Clarify national roles and responsibilities
- ▶ Develop or update funded National Action Plans (NAPs)



Limited statistical representativeness

- ▶ Small sample sizes
- ▶ Surveillance systems still developing
- ▶ Gaps in aquaculture and food sectors

Progressively expand and systematize surveillance workflows

- ▶ Move toward nationally representative sampling
- ▶ Align methods across the food chain
- ▶ Include aquaculture and plant production



Heterogeneity in laboratory methods and quality assurance

- ▶ Different testing methods and interpretations
- ▶ Weak quality assurance

Harmonize laboratory practices

- ▶ Use standardized testing guidance
- ▶ Strengthen quality control across all laboratories



Weak data management and autonomy

- ▶ Fragmented or missing data systems
- ▶ Limited in-country data analysis capacity

Build national data capacity

- ▶ Improve data systems and digital tools
- ▶ Train staff and assign clear data roles
- ▶ Establish national data and analysis units



Limited data sharing and use due to confidentiality

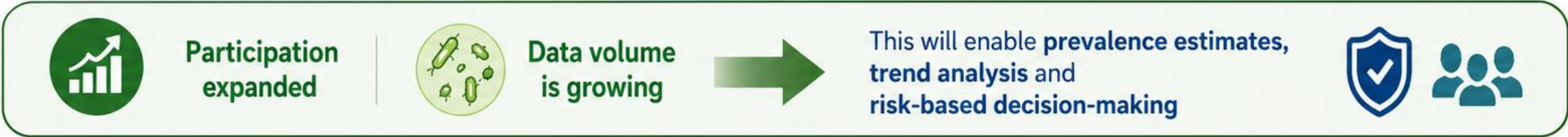
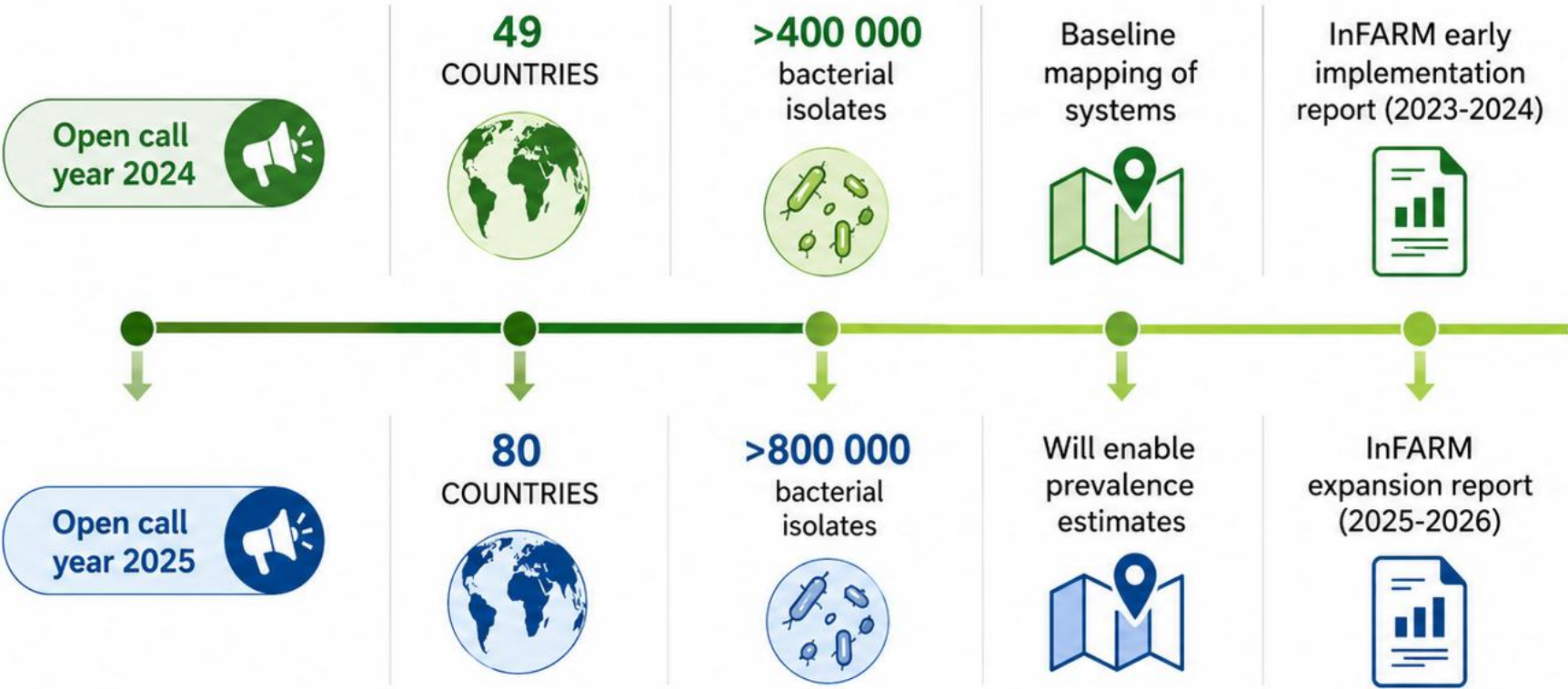
- ▶ Data shared in restricted or aggregated form
- ▶ Limited exchange within countries

Increase transparency and data use

- ▶ Expand detailed data reporting
- ▶ Share results nationally and globally
- ▶ Strengthen One Health collaboration

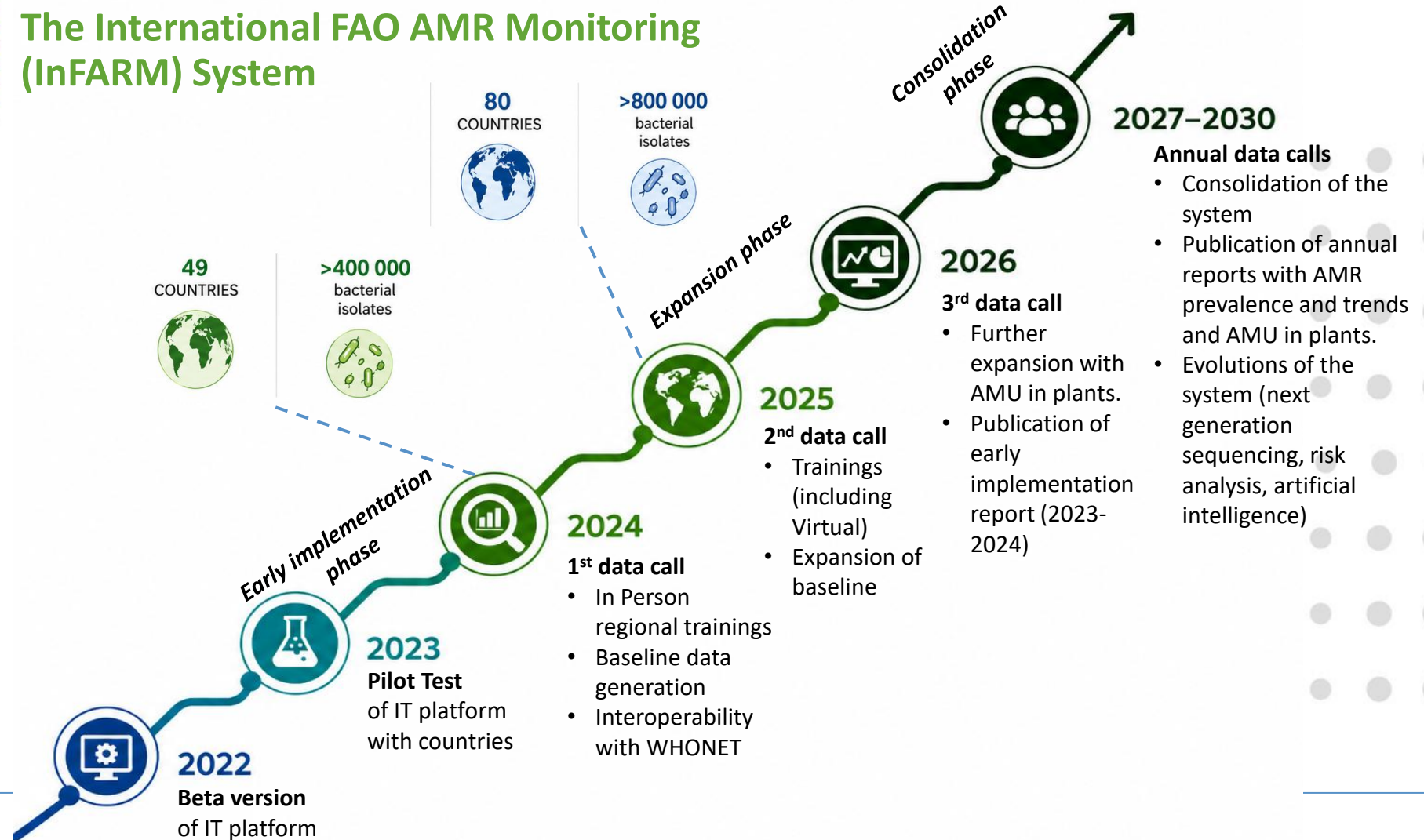
The International FAO AMR Monitoring (InFARM) System and IT platform

Sustained momentum in participation

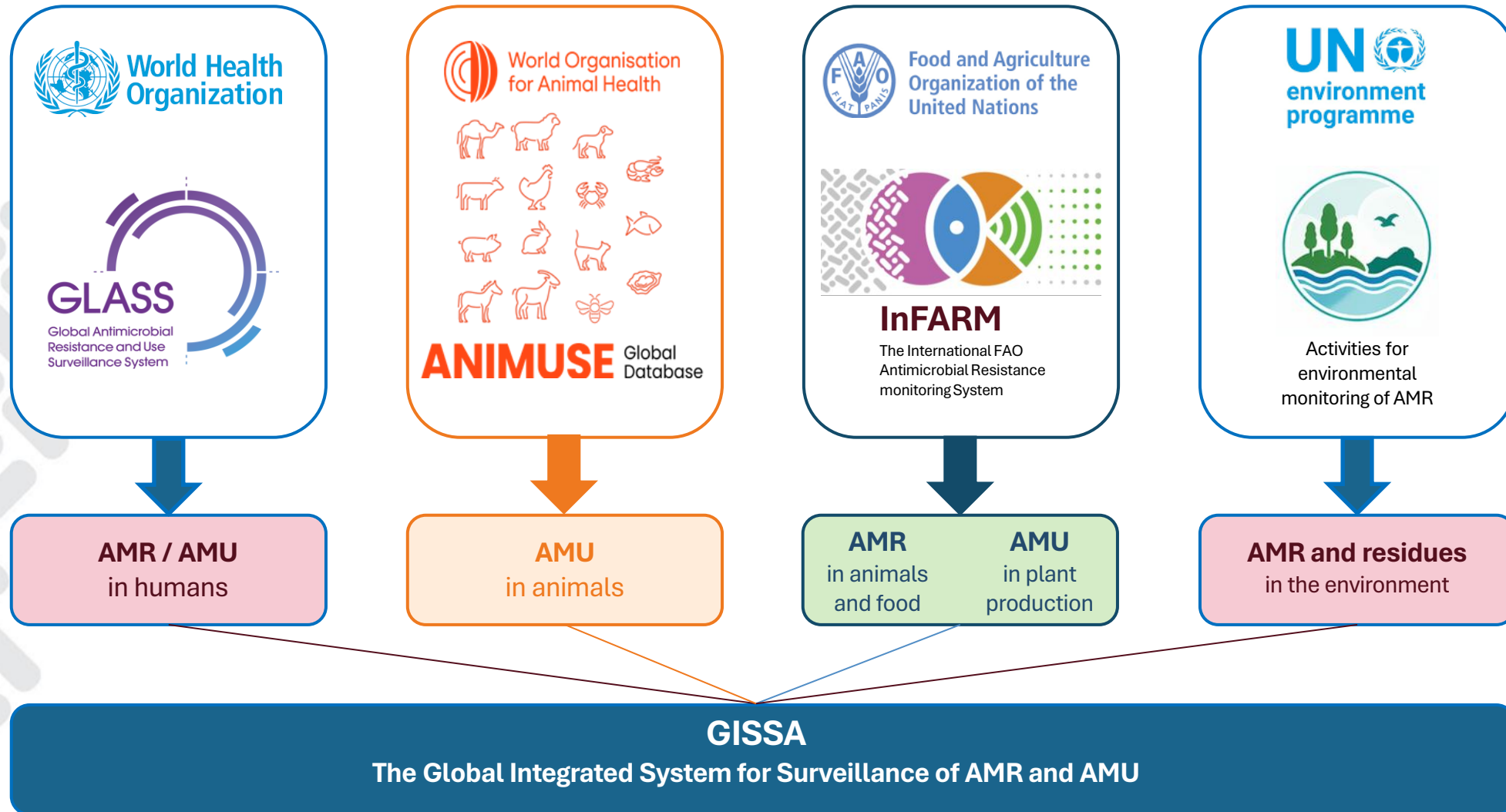


InFARM Expansion phase (2025-2026)

The International FAO AMR Monitoring (InFARM) System



Quadripartite GISSA integration – linking data across sectors





Global and regional submission status (2024-2025 open calls)

CAUTION! Data are preliminary and may still change

How to read the next slides, current and future reports

Four different units are used in the results. Each tells a different part of the InFARM story.

PEOPLE

InFARM focal points

Individuals designated to represent a country in InFARM.

Count: individuals

A country may have more than one focal point.

EFSA note: some European countries submitting through EFSA's centralized regulatory submission are not included.

COUNTRY × SURVEILLANCE DOMAIN

Surveillance implementation questionnaires

Describe how AMR surveillance is organized and implemented.

Analyse: country × InFARM surveillance domain

One country may report on several surveillance domains.

These results describe surveillance implementation—not the volume of AST data.

DATASETS

AMR data files

One submitted dataset meeting the InFARM AMR-file definition.

Count: files

One country may submit multiple AMR data files.

Files are separated by calendar year, surveillance programme and scale / statistical representativeness.

ISOLATES

AMR data / AST isolates

The isolate records contained within the submitted AMR data files.

Count: isolates

One AMR file may contain 20 to 100,000+ isolates.

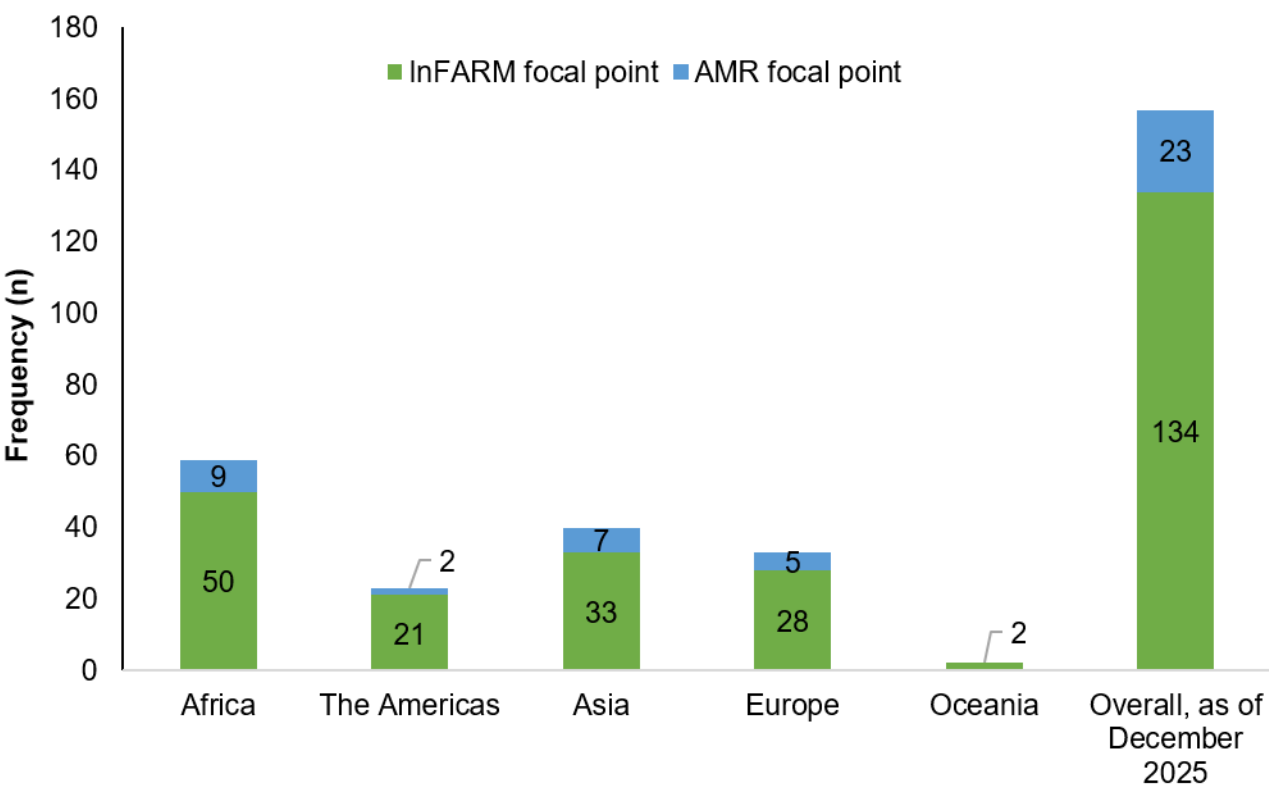
Therefore, file counts and isolate counts should not be expected to move together.

Before interpreting a number, ask: “What is being counted?”

People • Country × domain • Data files • Isolates

Preliminary overview - enrolment received, combined 2024 and 2025

InFARM focal points are nominated by their government; one core responsibility is data preparation



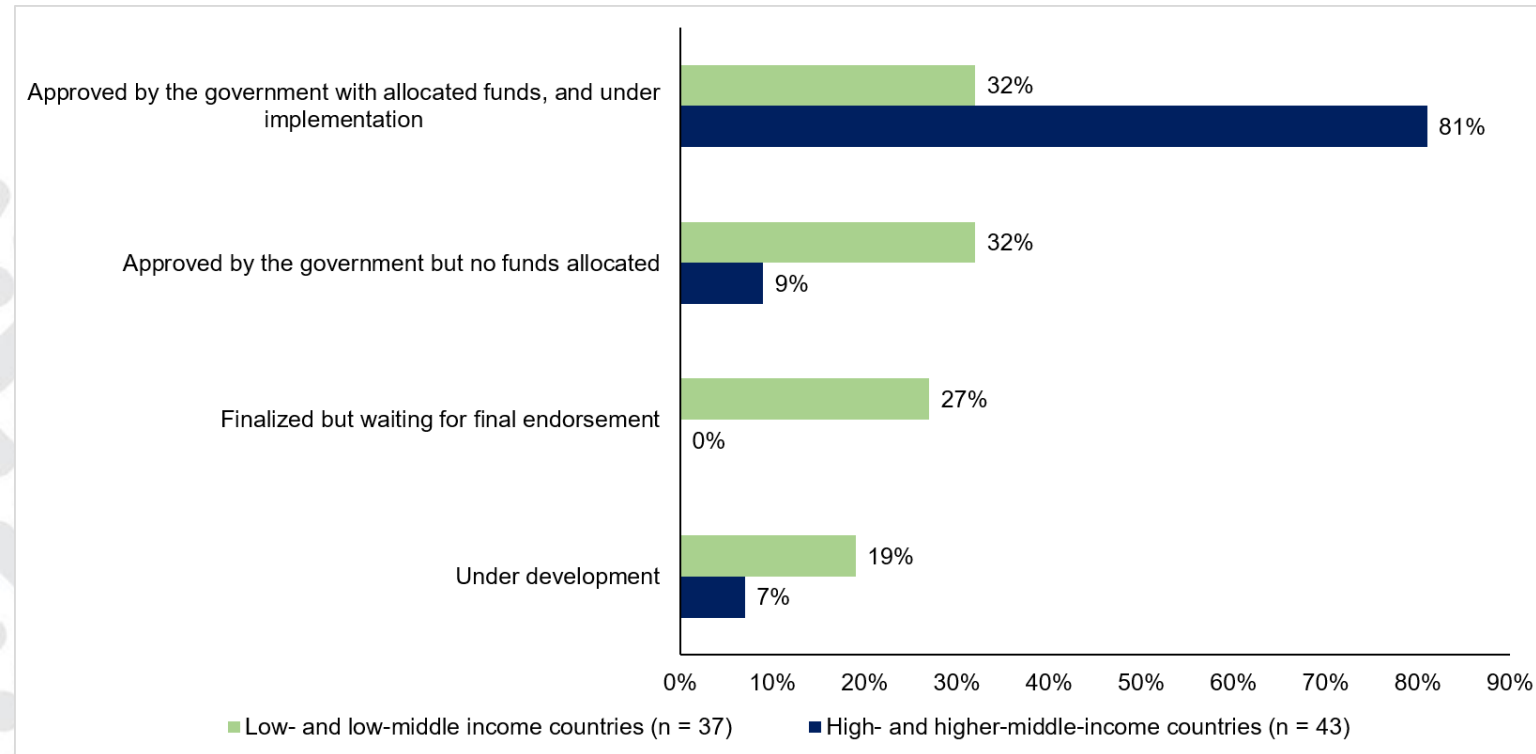
InFARM user enrolment* dashboard			
Measurement	Frequency, n		
Total enrolled users	157		
Countries represented	73**		
Regions represented	5		
InFARM focal points	134		
AMR focal points	23		
Region	InFARM focal point***	AMR focal point	Frequency, n
Africa	50	9	59
Americas	21	2	23
Asia	33	7	40
Europe	28	5	33
Oceania	2	0	2
Overall, cumulative (2024-2025)	134	23	157

*enrolled status only-accessed the platform and accepted the Terms of Use
**some countries contributing data through the European Food Safety Authority are not yet included
AMR focal points are “read only” personnel.

Focal points enrol only once to access the platform.
Focal point numbers may vary annually due to changes in country designations.

Preliminary overview- AMR surveillance implementation questionnaire

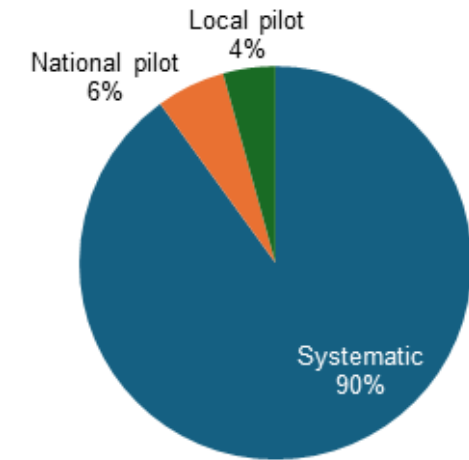
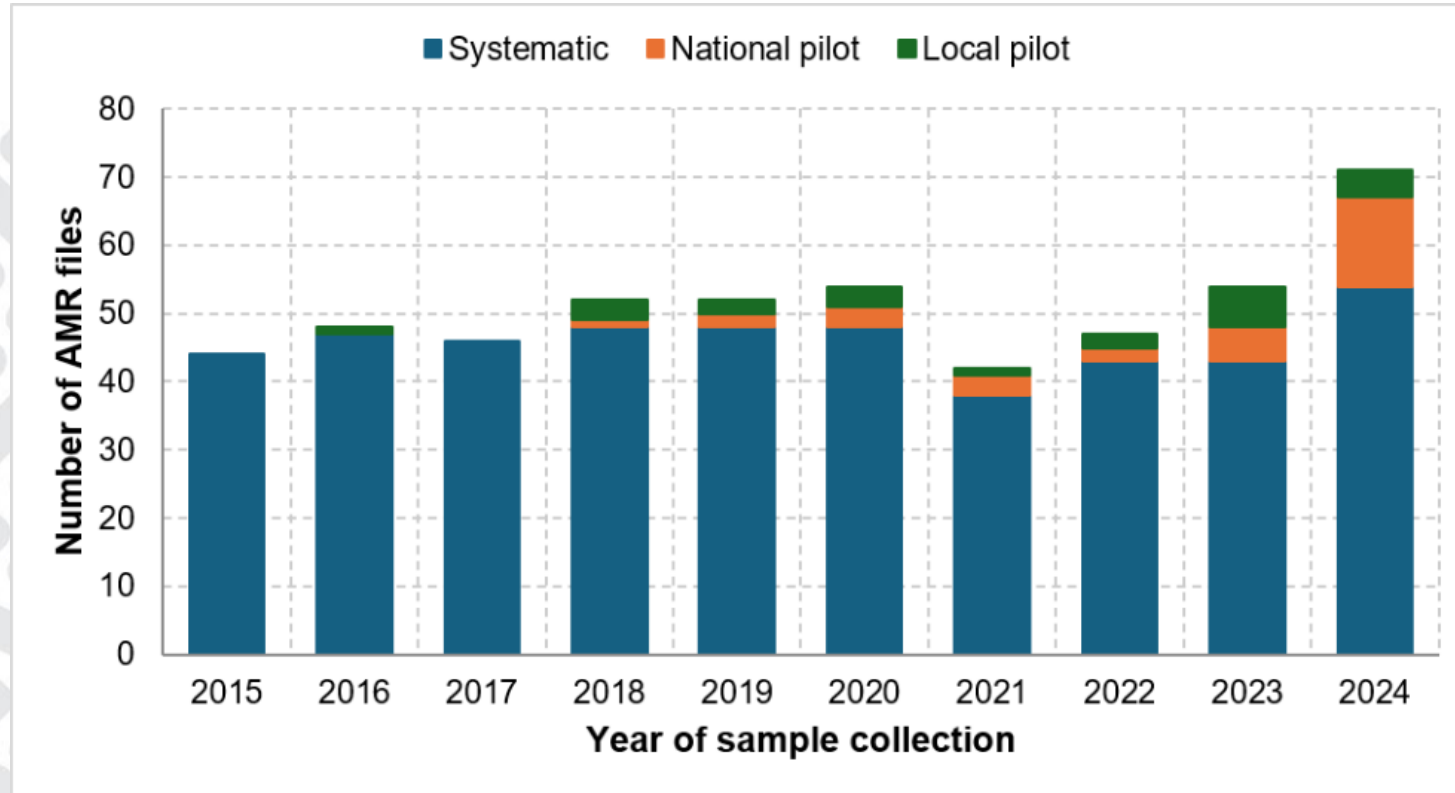
Overall response (in one or more of the InFARM surveillance domains), n = 80 countries



- **86% of the 80** countries indicated that they have a national AMR program.
- Various level of implementation: more established in high- and higher-middle income countries (**81%**) compared to low- and low-middle income countries (**32%**).
- External quality assurance (EQA) and proficiency testing (PT) participation
 - 44% of peripheral laboratories
 - 69% of national reference laboratories

Preliminary overview- total of 510 AMR data files received from 49 countries

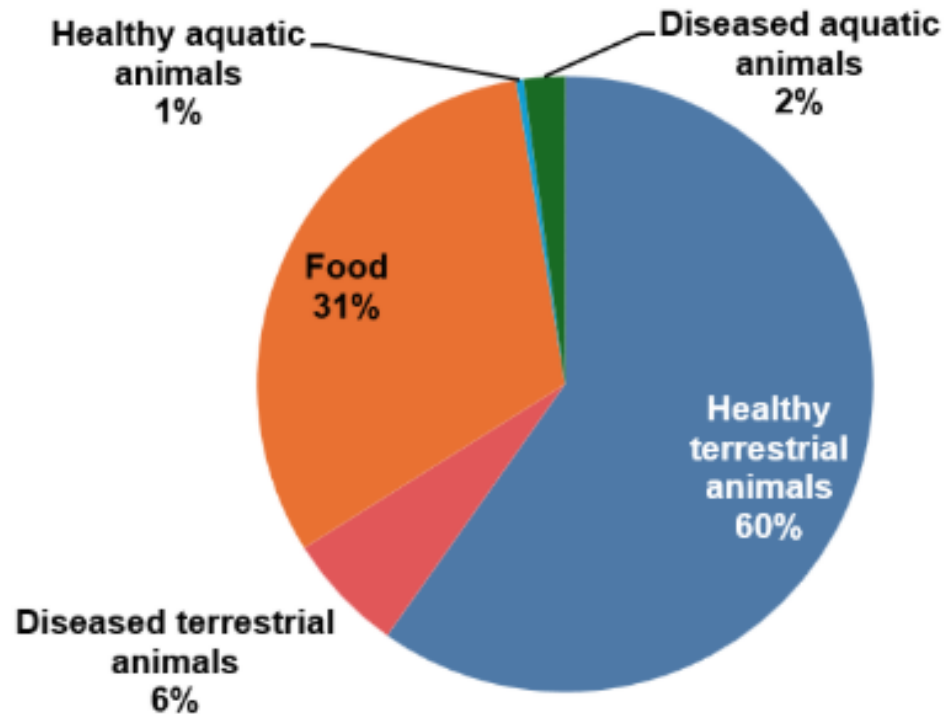
Countries can submit AST data obtained through programmes with different levels of representativeness
local pilot, national pilot to systematic sample collection



Data in confidentiality level II and III from local, national pilot and systematic will be included in the global analysis of AMR measurements

Preliminary overview- total of 510 AMR data files received from 49 countries*

Countries can submit data under the 5 InFARM surveillance domains



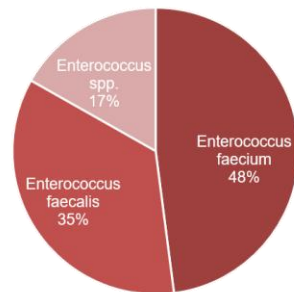
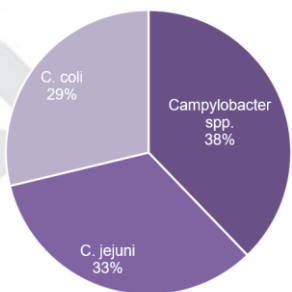
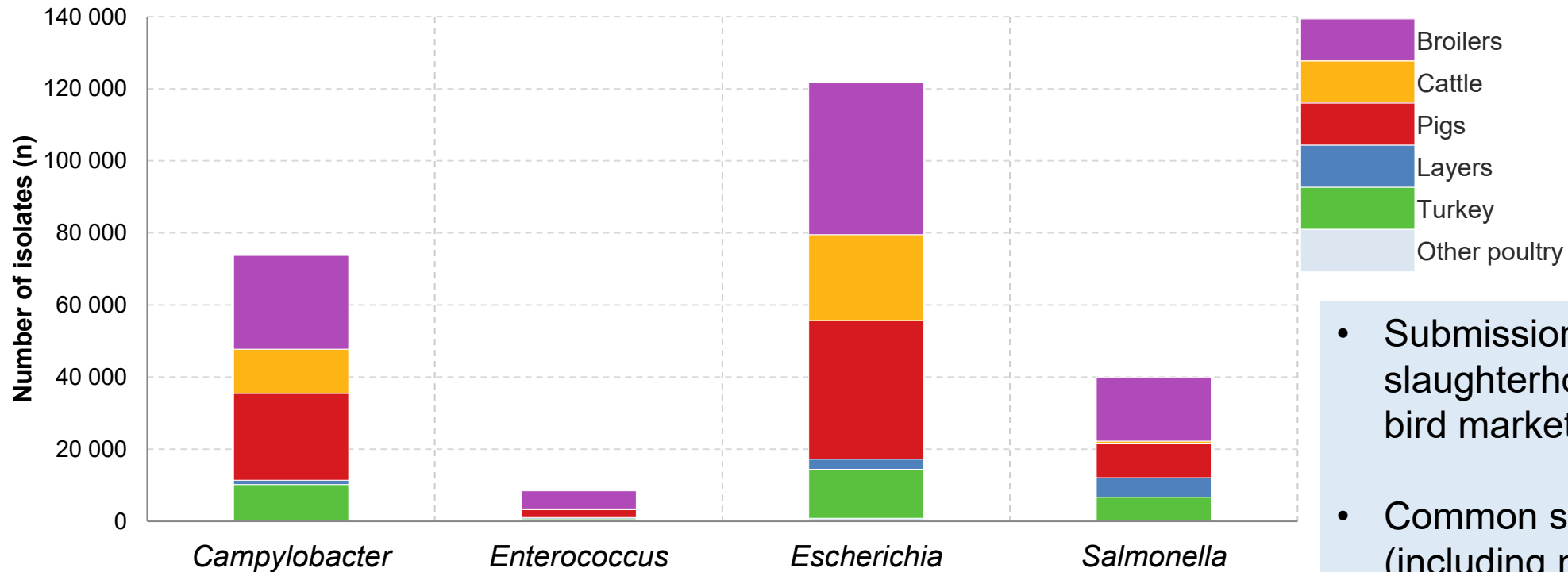
Did you know?

You can use WHONET to transform your existing datasets to a ready-to-upload InFARM data file under InFARM's 5 surveillance domains

*Confidentiality levels II and III only; data including pilot local, pilot national and systematic designs

Submissions under healthy terrestrial animals

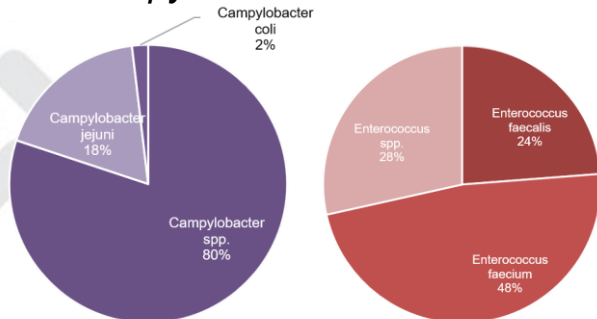
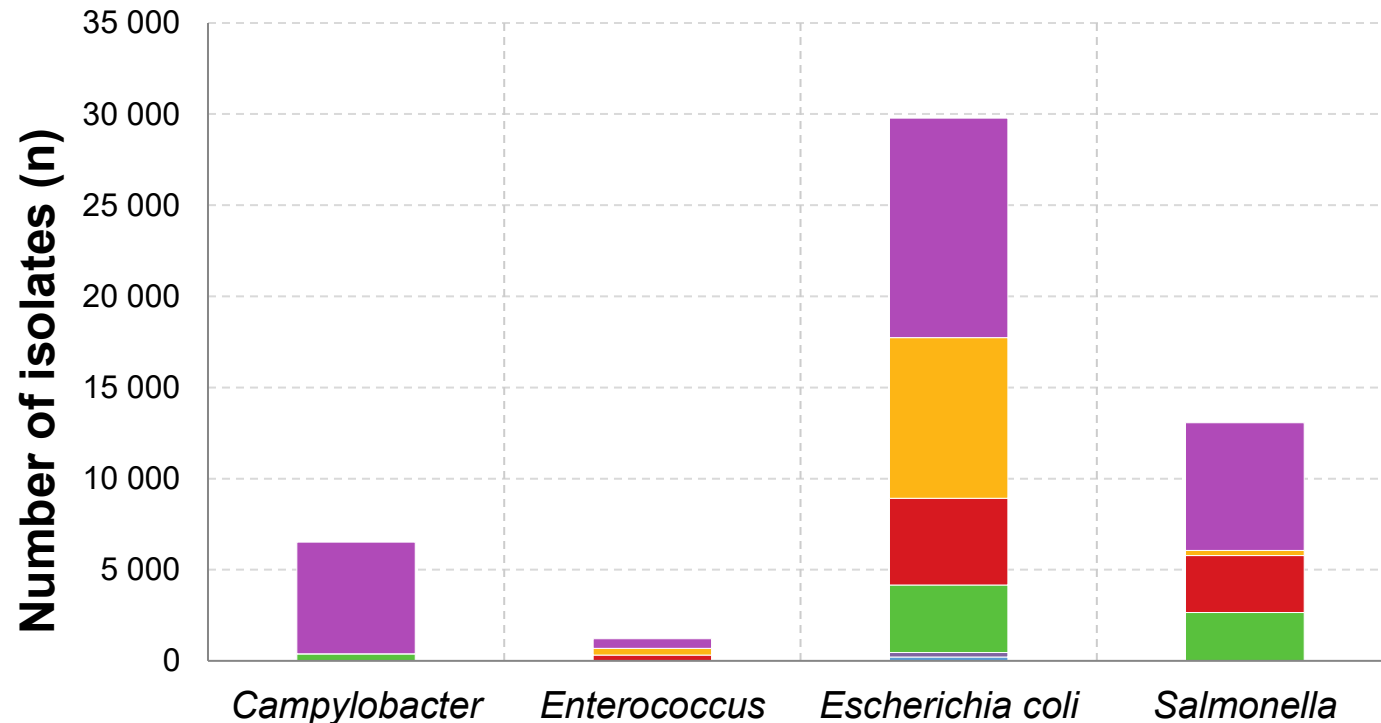
Foodborne and indicator bacteria routinely monitored in national AMR surveillance programmes



- Submissions from farms and slaughterhouses (some from live bird markets)
- Common samples: fecal samples (including manure, cloacal swabs, rectal swabs), cecal contents
- Limited number of isolates: *Klebsiella pneumoniae*

Submissions under food at processing and retail

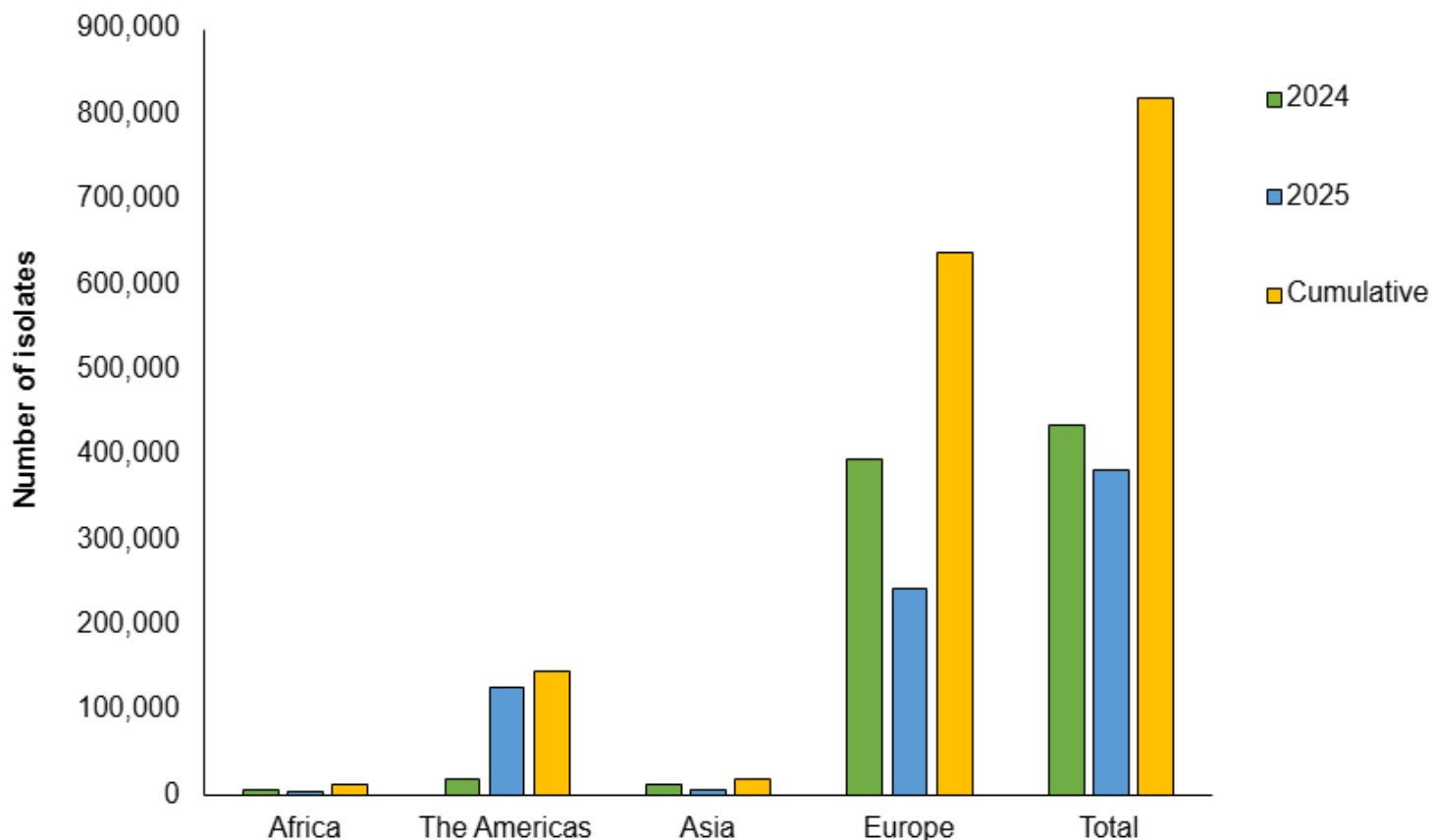
Foodborne and indicator bacteria routinely monitored in national AMR surveillance programmes



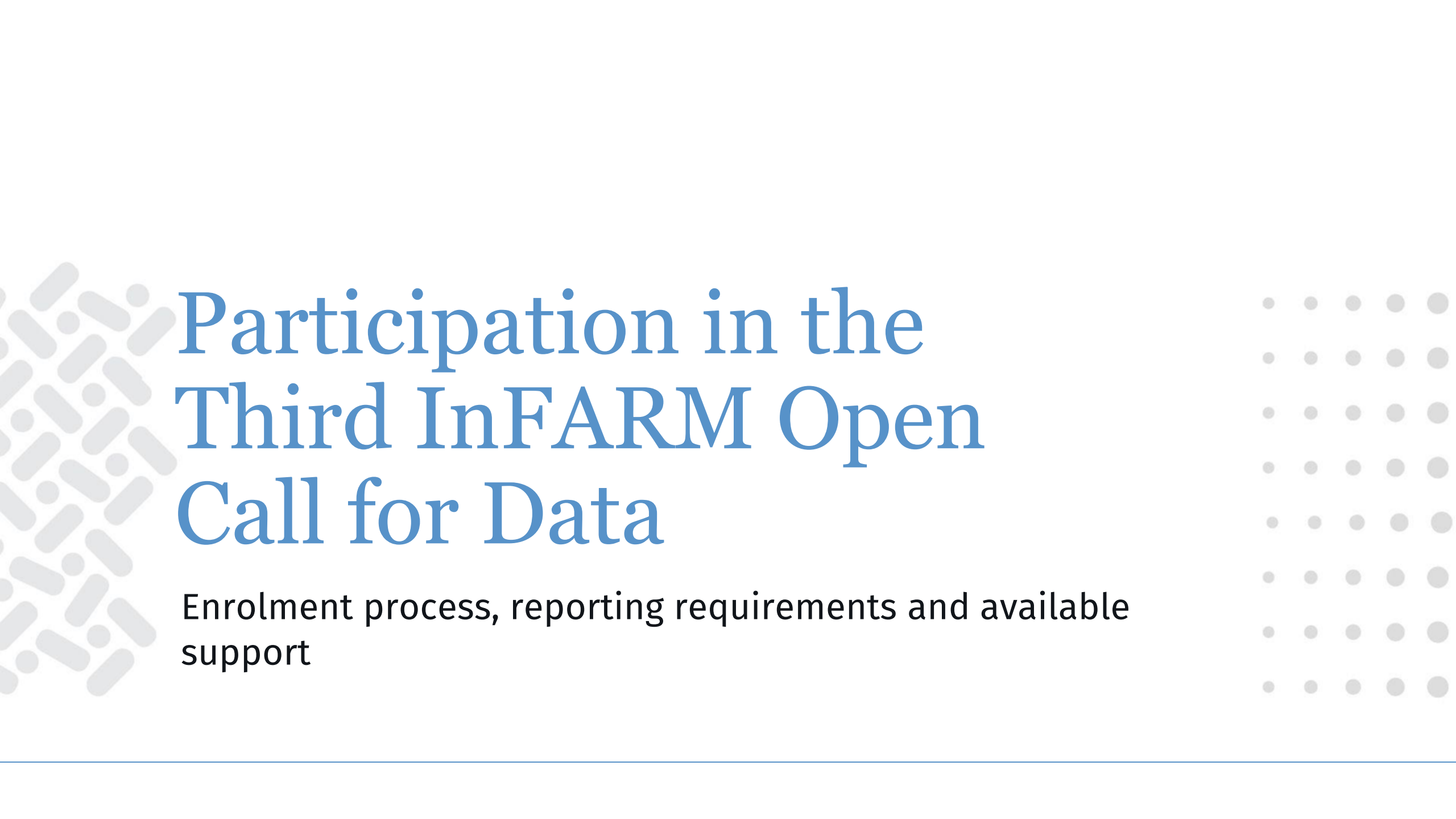
- Submissions from food processing and point of sale/retail (grocery stores, butcher shops, wet markets), border inspection
- Common samples: meat
- Limited number of isolates: *Klebsiella pneumoniae*, *Staphylococcus*

Preliminary overview- total AST data received combining 2024 and 2025 open calls

Total isolates reported, confidentiality Levels II and III and from national pilot and systematic data collection only (N = 819,038 isolates)



- Although the current global dataset is sufficient to generate the first global AMR estimates, additional data from underrepresented countries and regions (e.g., Africa and Asia) are needed to improve the representativeness and precision of these prevalence estimates.



Participation in the Third InFARM Open Call for Data

Enrolment process, reporting requirements and available support

InFARM's third open call for data

FAO invites Members to take part in the third annual open call, running from July 2026 to 1 December 2026.

JULY 2026

Platform opens

Submissions open automatically to enrolled focal points

STEP ONE

Nomination of Focal points

Submit the enrolment form to FAO to get the credentials

STEP TWO

Questionnaire and data

Complete Surveillance questionnaire, and (optional) AMR data

1 DECEMBER 2026

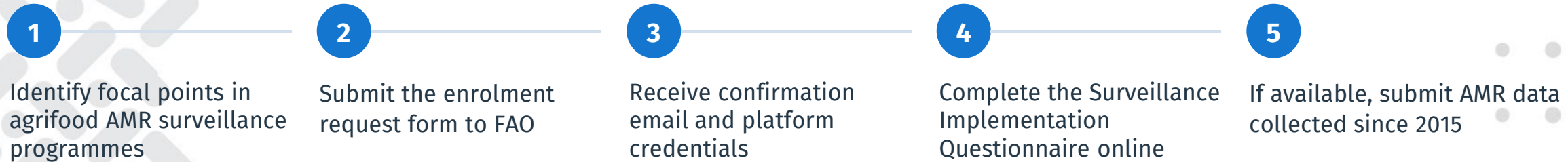
Call closes

Final deadline for submissions in this cycle

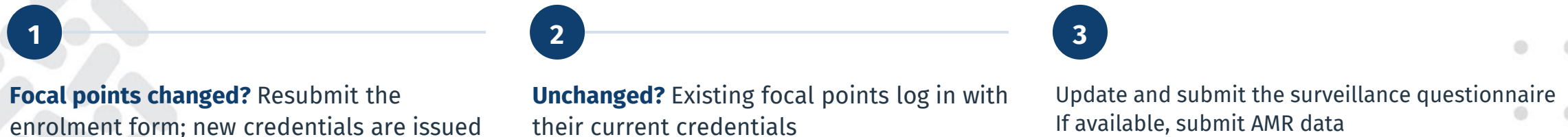
Two routes of participation

InFARM focal points sit within the national authorities responsible for AMR surveillance in agrifood systems, typically Ministries of Agriculture or Fisheries, or food safety agencies.

Countries new to InFARM



Continuously participating countries



Enrolment

STEP ONE OF ENROLMENT

Nomination of InFARM Focal Points

Who to nominate

National experts meeting three conditions.

EXPERTISE

Microbiology and/or epidemiology

Experience with AST results from animal and food samples.

CONTEXT

National AMR surveillance

Sufficient knowledge of how surveillance is run in the country.

MANDATE

Authority to access data

Formal authority to access and share national AMR data.

Responsibilities

Six roles, distributable among several focal points.

- 01 Submit and update documentation for country enrolment *
- 02 Receive and manage country user account credentials *
- 03 Complete the monitoring, surveillance and implementation questionnaires *
- 04 Collate national AMR data and transform it aligned with InFARM data model
- 05 Submit data files and access interactive data visualizations for national use
- 06 Validate visualizations for the global interface

* Required to complete country enrolment

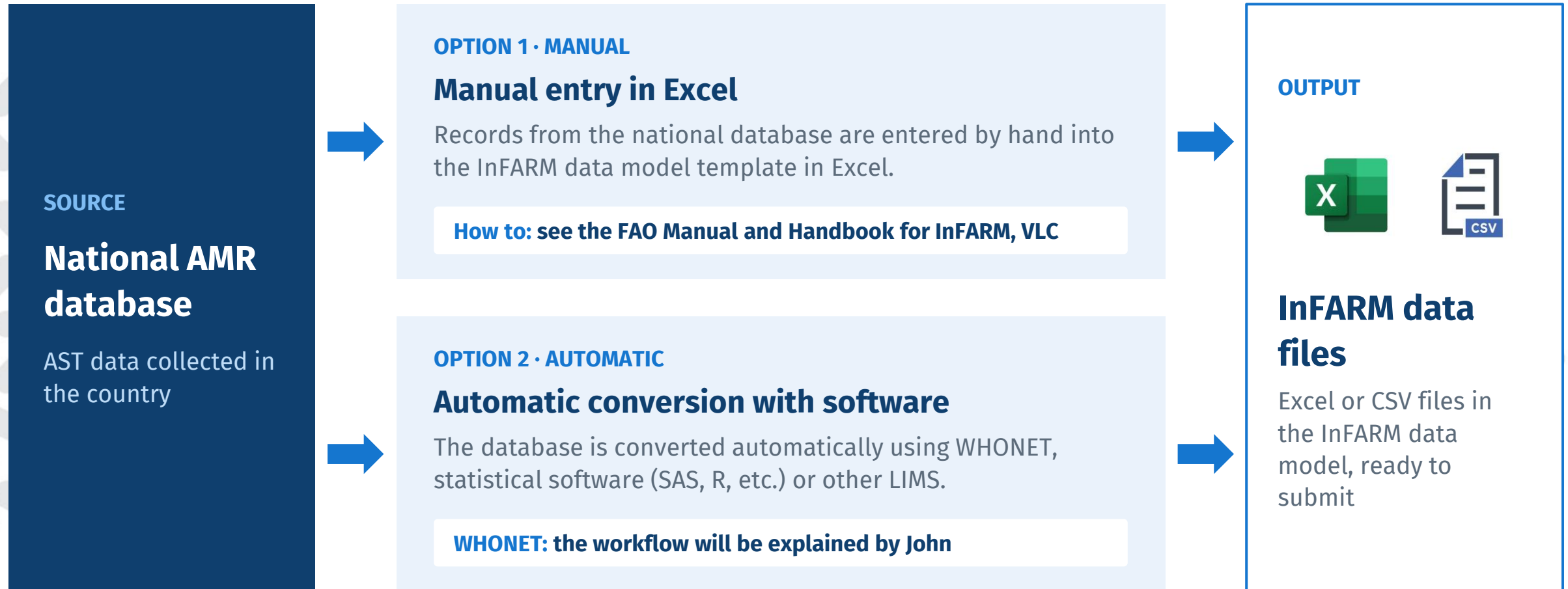
Levels of participation

Once focal points are nominated, each country chooses its level of participation: what it shares and who can see it.

LEVEL	WHAT IS SHARED	WHO CAN SEE IN PUBLIC INTERFACE	WHAT YOU GAIN
LEVEL 0 Questionnaire only	Information on surveillance implementation; no AMR data	Currently is not shared through the data visualization	FAO support and training targeted to your gaps
LEVEL I Private	Information on surveillance implementation AND AMR data file	Not available	Using the data for country purpose; data excluded from all regional and global analyses
LEVEL II Public (anonymous)	Information on surveillance implementation AND AMR data file	Data shown as regional and global aggregates; country identity is hidden	Benchmark against your region and global; contribute without being identified
LEVEL III Public	Information on surveillance implementation AND AMR data file	Public country-level dashboards plus aggregates	Full visibility and recognition; strongest contribution to the global evidence base

Transforming national AMR data into InFARM data files

Your national AMR data can be converted to the InFARM data model in two ways: manually or automatically.



Possible support for national data preparation

Where feasible, projects may allocate resources for a national data manager to facilitate data preparation, quality checks and submission.

National InFARM support personnel

GENERIC TERMS OF REFERENCE

The personnel will support the national focal points with enrolment documentation, surveillance questionnaires, and the preparation, validation, and submission of datasets through the platform.



SUPPORTS, DOES NOT REPLACE

For the ToR and more information: FAO-AMR-InFARM@fao.org

DELIVERABLES IN THE DRAFT TOR

- 1 Review of the national AMR surveillance system
- 2 Completion of InFARM documentation
- 3 Dataset preparation and validation
- 4 Submission through the InFARM platform
- 5 Final technical report

Training for focal points

A blended Virtual Learning Centre programme, self-paced and open for self-enrolment.

COURSE 1 • AVAILABLE NOW

InFARM Essentials: An Overview

Introduces InFARM and the enrolment process. Open to all; self-enrol on the VLC platform.

InFARM essentials: An overview

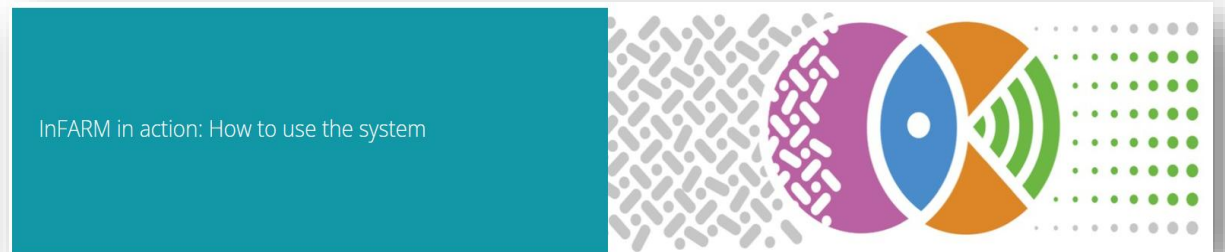


COURSE 2 • FOR FOCAL POINTS

InFARM in Action: How to Use the System

Covers data submission in practice. Completion of Course 1 is recommended before enrolling.

InFARM in action: How to use the system



Both courses are available on the InFARM VLC training portal: <https://virtual-learning-center.fao.org/>

Consultations and reference materials

COUNTRY CLINIC CONSULTATIONS

One-on-one online support sessions to help countries share their AMR data, particularly those doing so for the first time.

Available throughout the duration of the open call.
Sessions are arranged by email.

For organizing a session and questions: FAO-AMR-InFARM@fao.org

GUIDANCE DOCUMENTS

Manual for implementation of InFARM

Handbook with additional instructions to participate in the data call

InFARM landing page

fao.org/antimicrobial-resistance/resources/infarm-system/en

The manual set out the enrolment, questionnaire and data submission requirements in detail.

The handbook provides additional guidance on prioritizing the submission of specific combinations of the mandatory variables: ORIGIN, SPECIES, SPECIMEN, and MICROORGANISM.



Ministry of Food and
Drug Safety
Republic of Korea

Thank You

More information

[Website: InFARMSystem | AntimicrobialResistance | Food andAgriculture Organization of the United Nations](#)

Contact

FAO-AMR-InFARM@fao.org