A global surveillance system (GSS) for crop diseases

Global preparedness minimizes the risk to food supplies

M. Carvajal-Yepes, K. Cardwell, A. Nelson, K. A. Garrett, B. Giovani, D. G. O. Saunders, S. Kamoun, J. P. Legg, V. Verdier, J. Lessel, R. A. Neher, R. Day, P. Pardey, M. L. Gullino, A. R. Records, B. Bextine, J. E. Leach, S. Staiger, J. Tohme.

It all started with a brainstorming in Bellagio…

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Surveillance (ISPM 6, 2018)

Specific surveillance

- Consists of information on pests of concern in areas and is obtained by the NPPO over a defined period.
- NPPOs actively gather specific pest-related data, through labs at entry and trade points, customs and border patrol, seed inspection, and phytosanitary services, and includes coordinated agricultural pest surveys designed to prevent the introduction and movement of specific pests and diseases.
- It includes surveys that are conducted to determine the characteristics of a pest population or to determine which species are present or absent in an area.

* ***Despite the substantial global targeted surveillance infrastructure, only an estimated 2 to 6% of all cargo entering a country can be effectively screened*** (Work et al., 2005).

General surveillance

- Consist in information on pests of concern in an area is gathered from various sources not only by NPPO. It is aimed at detecting and diagnosing all pests and crop diseases, not just those that are regulated.
- First detectors of an outbreak are often loosely networked groups of citizens; scientists and trained agronomists; university plant pathology labs; fee-for-service clinics supporting grower industries; CGIAR plant pathology labs; national networked labs, such as the U.S. National Plant Diagnostic Network (NPDN); national extension service personnel; private crop consultants; and pesticide sales people and applicators.

* ***Diagnosis capacity, information sharing, and communications protocols are lacking or weakly established in most regions.***

The reflection on many disease outbreaks is that whether in high-income countries (HICs) or LICs, the passive surveillance infrastructure has the most in-field monitoring and trained eyes, but the least coordination from local to global level.

GSS to focus on transboundary and emerging pests and diseases

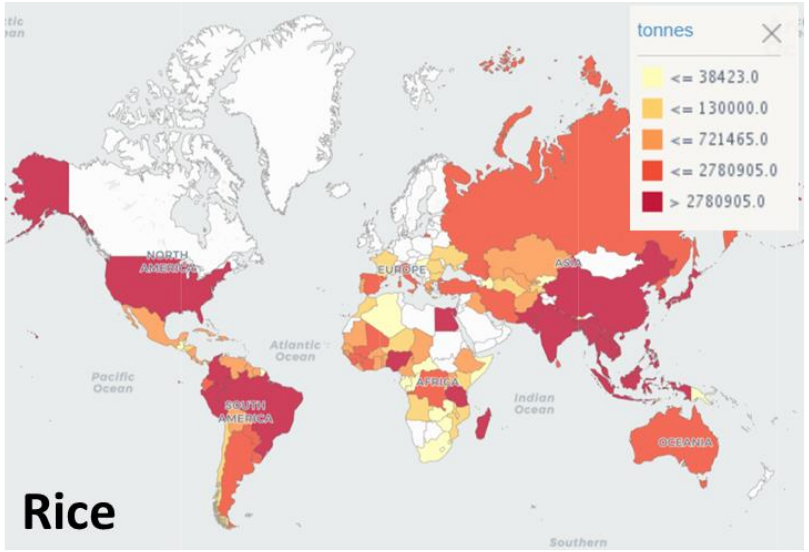
There is a gap between ambitions for a world plant health organisation and the current reality of small teams working with limited resources to develop and implement international and regional standards for phytosanitary measures (***CPM 2019/15***).

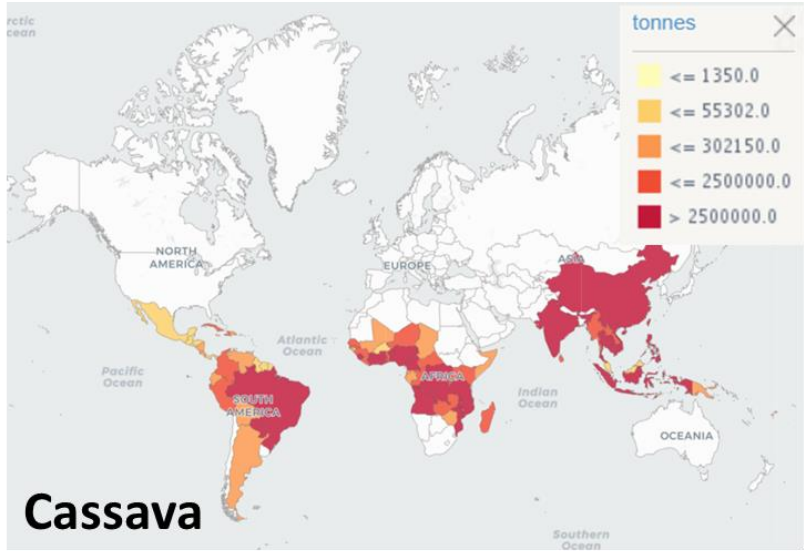
NPPOs, RPPOs, IPPC: priority on regulated pests and trade.

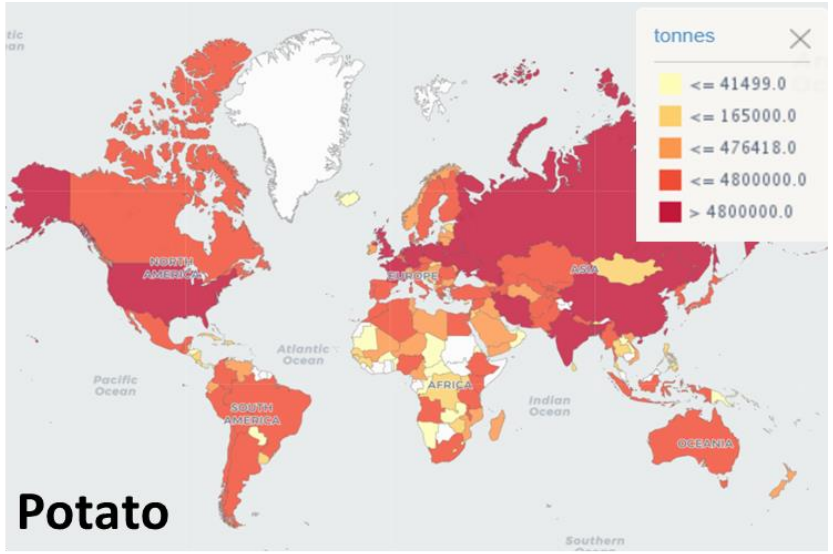
GSS: priority on emerging plant pathogens, insect pests, and other invasive species; plus support to the regulatory sector as needed.

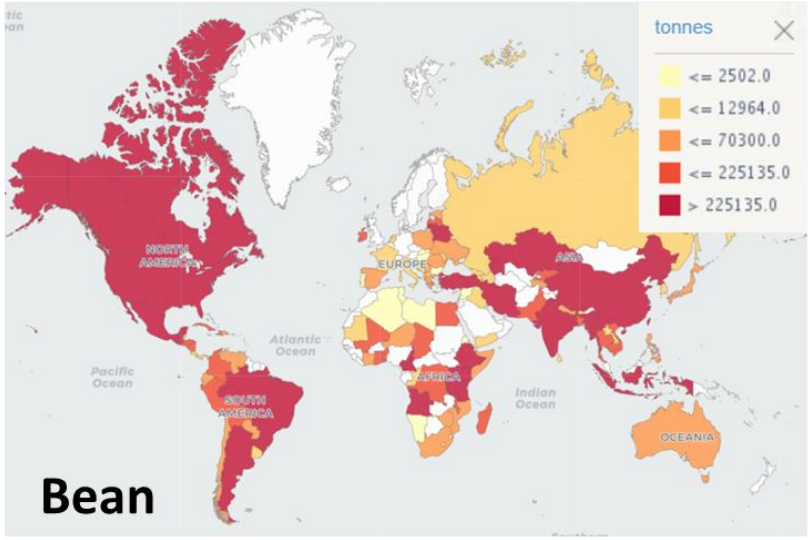
Initial focus on the world's most important crops

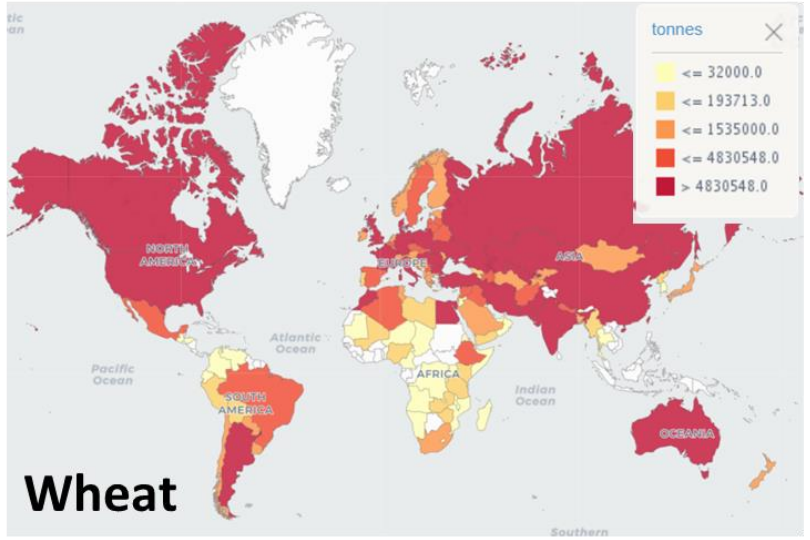
Source: FAOSTAT, 2019

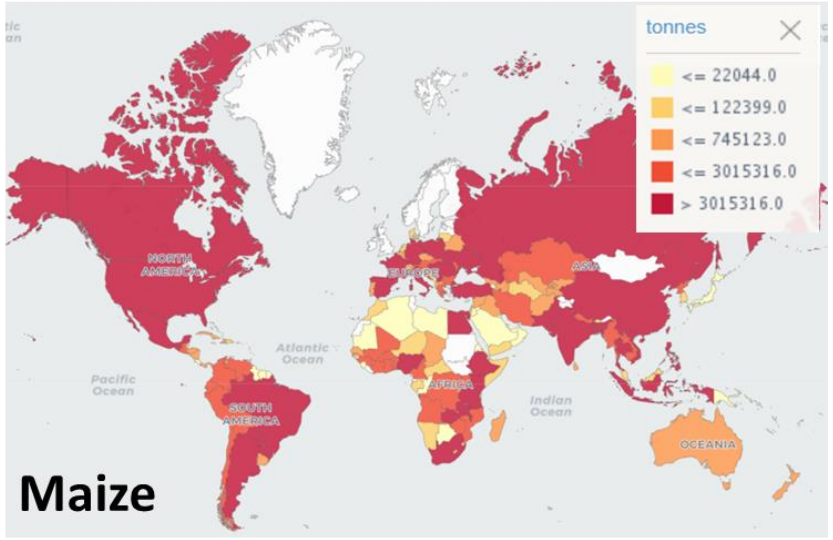








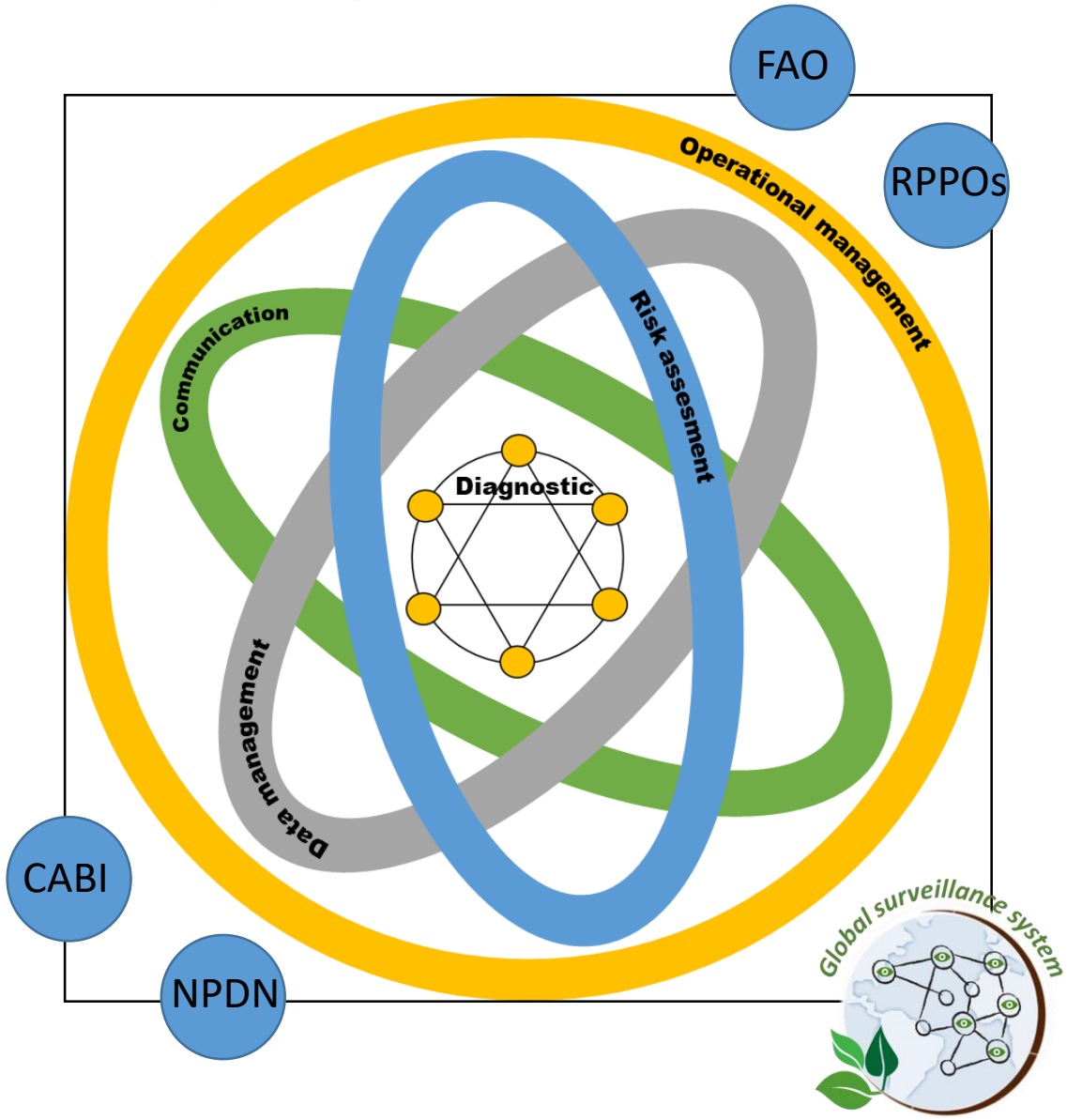




A Global Surveillance System (GSS): existing and new interconnected networks

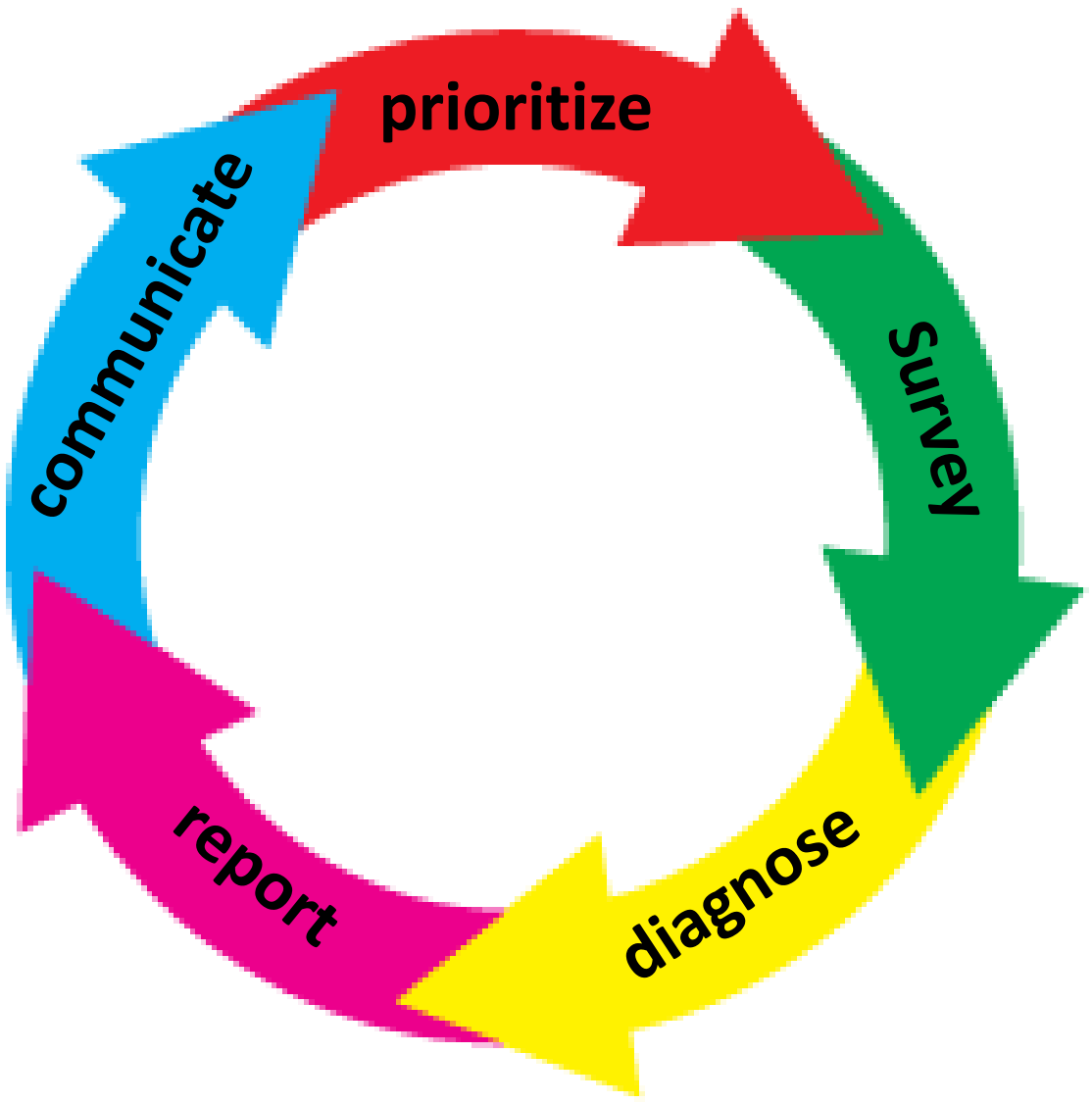
- Connecting existing surveillance systems worldwide,
- With linkages between general and specific surveillance entities across countries, and
- New regional organization that networks:

- **CGIAR Diagnostic labs with plant pathologists and entomologists in countries in each region,**
- **Data standardization and management specialists,**
- **Risk assessment modeling teams,**
- **Standardized communications protocols,**
- **Distributed operations management system, and**
- **With liaisons to existing networks.**



GSS at a glance

Action	Prioritize	Survey	Diagnose	Report (national)	Communicate (international)
Tools	Risk analysis	Protocols	Protocols	Reporting systems	Communication systems
Needs	Epidemiological data Trade data Models Surveillance data	Increase capacity	Increase capacity	Improve reporting	Transparency Early warning systems
How	Research	Protocols Training Research	Protocols Training *In-situ* testing Research	Increase awareness Connect players	Connect players
Who	NPPOs RPPOs IPPC GSS hubs	NPPOs Academia Research institutes Farmers General public	NPPOs Academia Research institutes Farmers General public	Academia Research institutes Farmers General public	NPPOs RPPOs IPPC GSS hubs
Cross-cutting issues	Research			Communication	

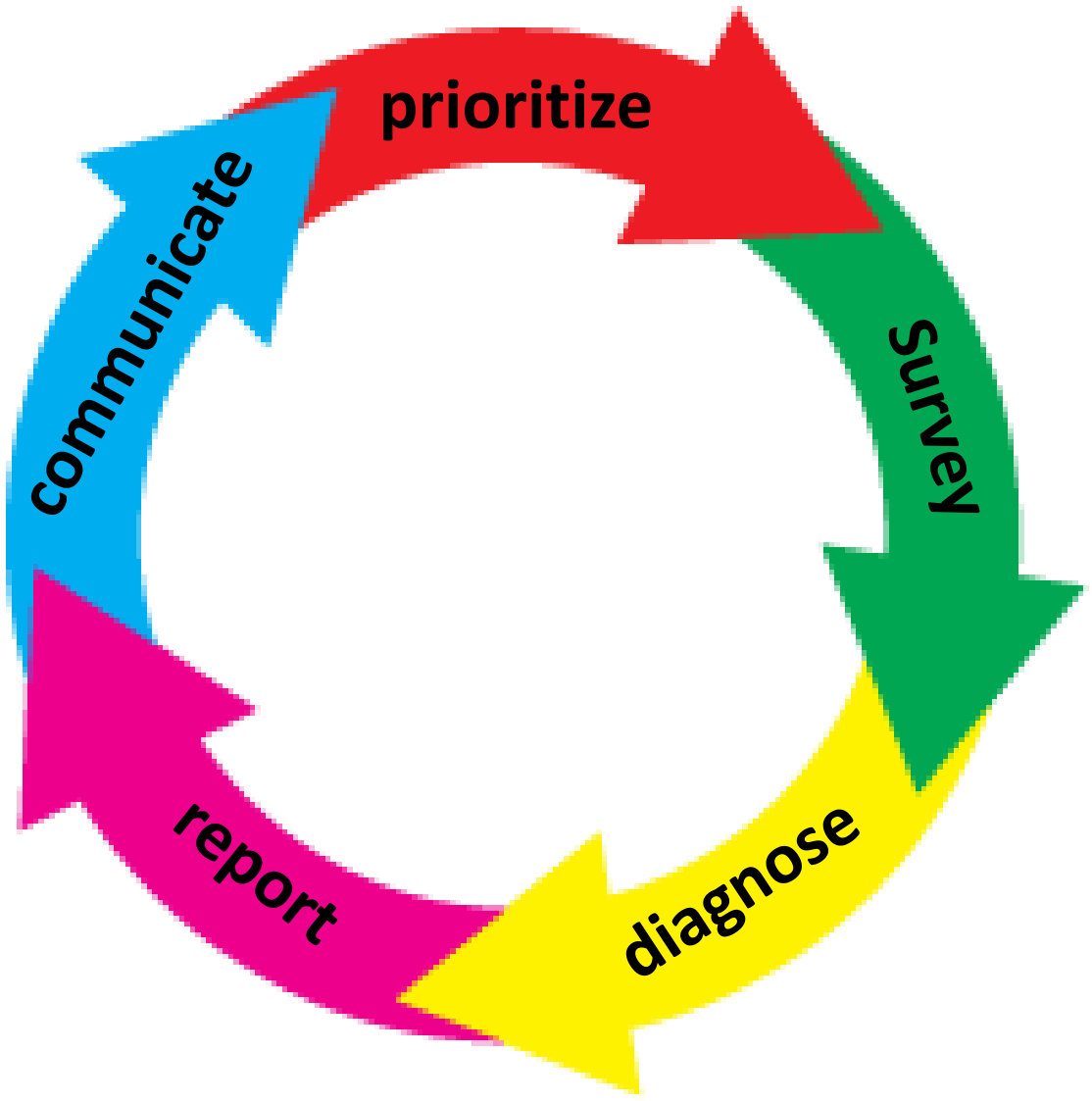


Prioritize

Global → Regional → National

Regional → National

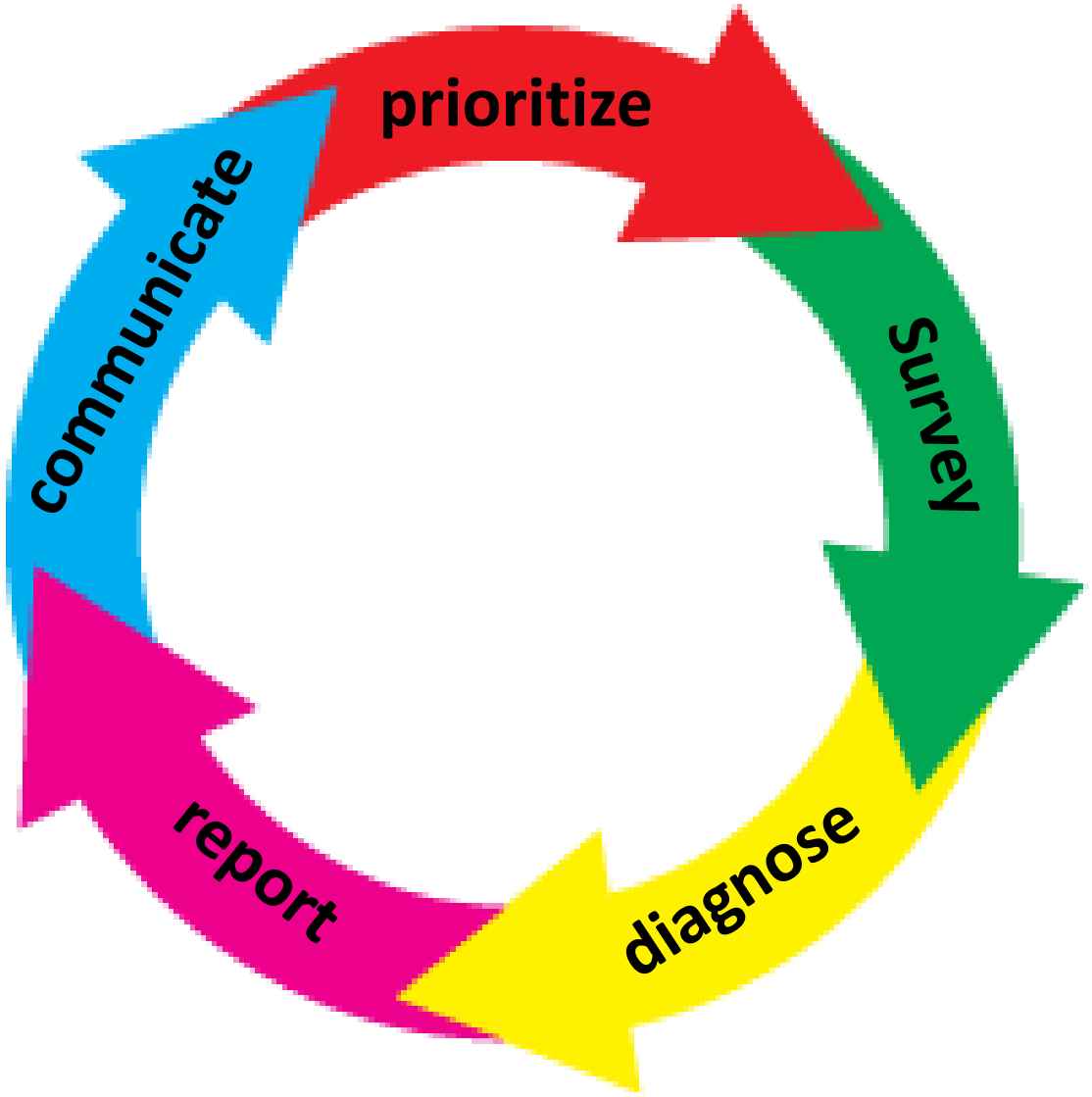
- Analyse surveillance data
- Analyse other data (e.g. climatic data)
- Produce data
- Develop forecasting models
- Produce global or regional risk analyses
- Identify global or regional priority pests
- Spread information regionally and nationally
- Inform surveillance activities
- Identify priorities for research activities



Survey

National

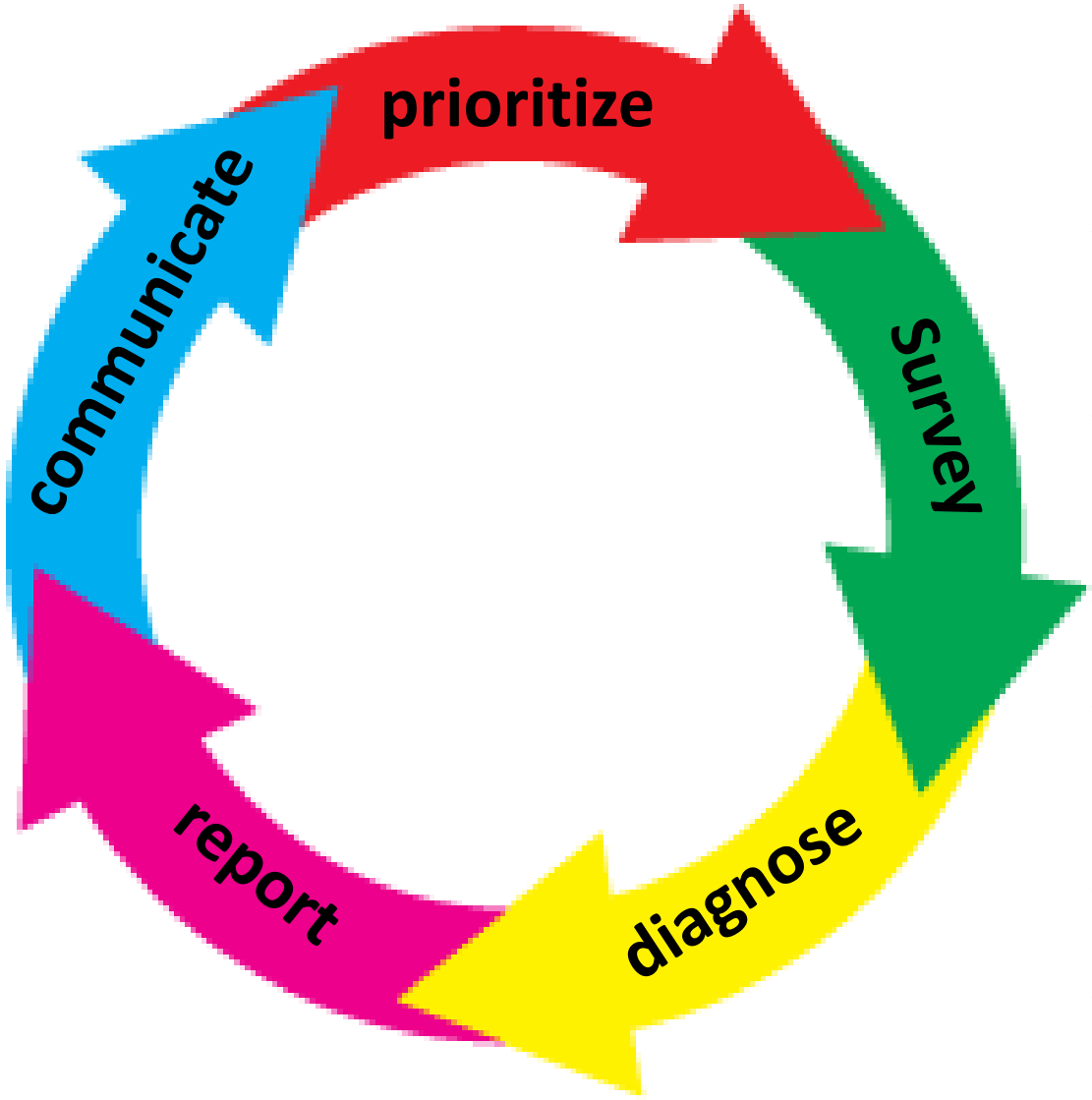
- Map, engage with and link to those involved in surveillance
- Identify/develop/harmonize protocols for surveillance
- Build capacity of those involved in surveillance
- Develop guidelines, procedures and infrastructures for open data
- Inform those involved in diagnostics
- Identify priorities for research activities



Diagnose

National/Regional

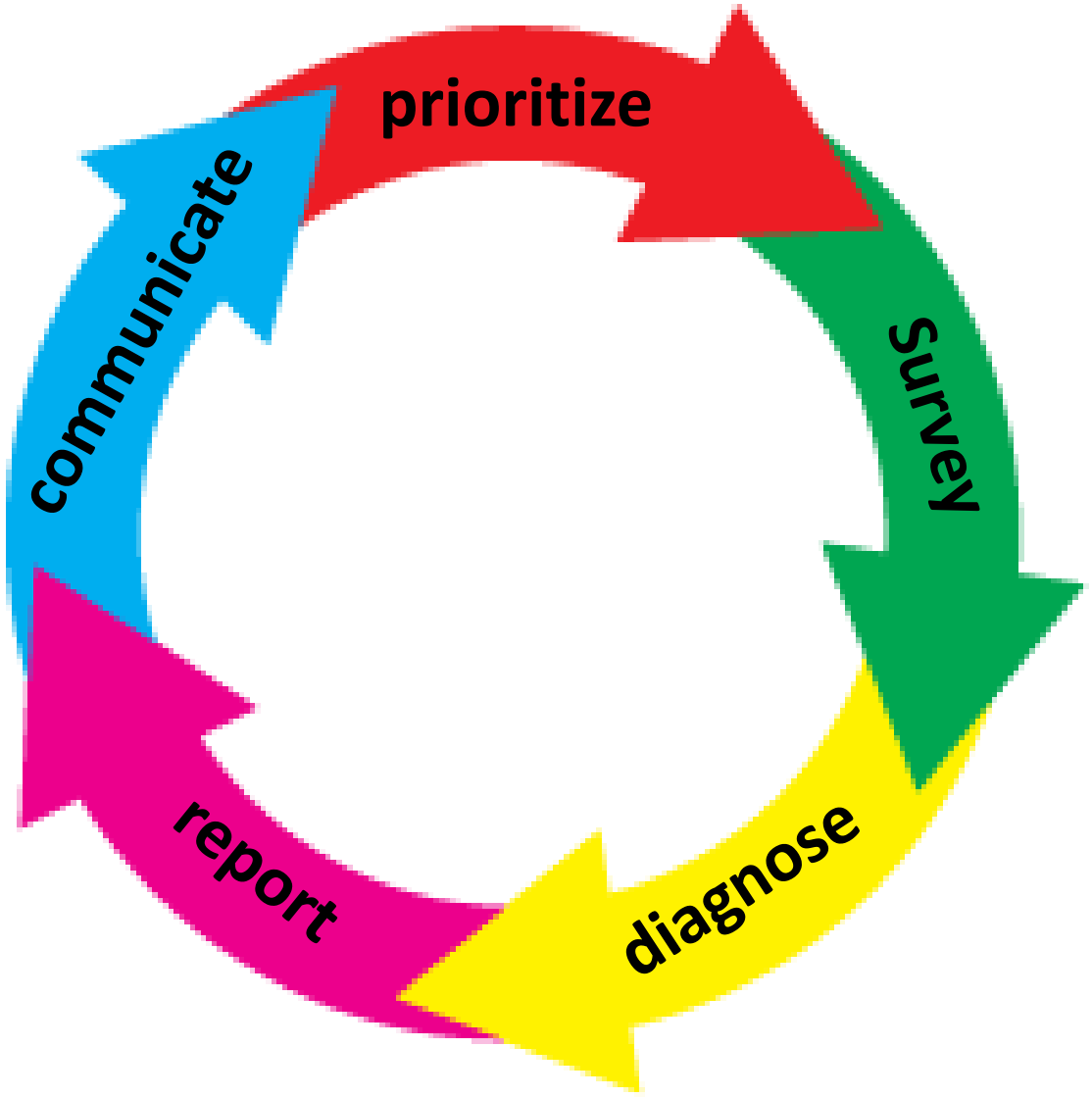
- Map, engage with and link to those involved in diagnostic activities
- Identify/develop/harmonize diagnostic protocols/ quality guidelines
- Identify/develop diagnostic tools
- Build capacity of those involved in diagnostics
- Develop guidelines, procedures and infrastructures for open data
- Identify priorities for research activities



Report

National

- Map, engage with and link to those involved in surveillance and diagnostic activities
- Identify/develop mechanisms to facilitate reporting
- Build capacity of submitters
- Develop filtering process at the point of contact
- Enhance notification of pest status
- Develop national contingency plans



Communicate

National → Regional → Global

- Develop communication protocols for the various actors
- Inform prioritization
- Map, engage with and link to donors

Questions to RPPOs

- Do RPPOs/NPPOs feel the benefit from having support for diagnostics for the initial focus on the world's most important crops?
- How much do the RPPOs/NPPOs need to access laboratory technology, infrastructure and knowledge capacity for diagnostics of unexpected diseases?
- How much access do the RPPOs/NPPOs have to risk assessment analysis that help guide sampling efforts in risk environments?
- Would different communication channels facilitate the coordinate response for regions to prevent the transboundary pest spread?
- Would RPPOs /NPPOs link with regional diagnostic hubs to confirm unexpected diagnostic findings, and to access to risk assessment analysis to measure the economic risk?

Thanks for your attention!