STAR-IDAZ
Global Network for Animal Disease Research

2012

WP2 Report on the Research Organisation Database

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Report on the research organisation database in partner countries

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In the STAR-IDAZ project, the goal of work package two is to map the current research situation in partner countries in the field of infectious diseases in farm animals.

Part of this task was to build a **research organisation database.**
It has various goals: among others, it is useful for the project coordinators and for the task leaders to get an overview of research organisations in partner countries. It can also be of interest to all partner countries as well as the scientific community in order to help build research collaborations. For this reason it has been designed as a free access and friendly user web database.

The objective of this report is not to thoroughly analyze the database, but to provide information on the method we used to create it and the main characteristics of the data that can be found in it.

A. Introduction

1. Objectives of WP2

The objectives of work package two are the following:

- To gather information on existing national and international funded Animal Health research programs.
- To map major operators managing these programs and major experimental infrastructures, any existing linkages between regional and international research programs (bilateral and multilateral).
- To organize and synthesize the gathered information in order to provide reliable indicators helping to identify overlaps, gaps and to identify areas where there are opportunities for development of common research priorities and linking of ongoing research activities in target priority diseases.

To achieve the above objectives, a specific database has been developed ; The Research Organisation Database.
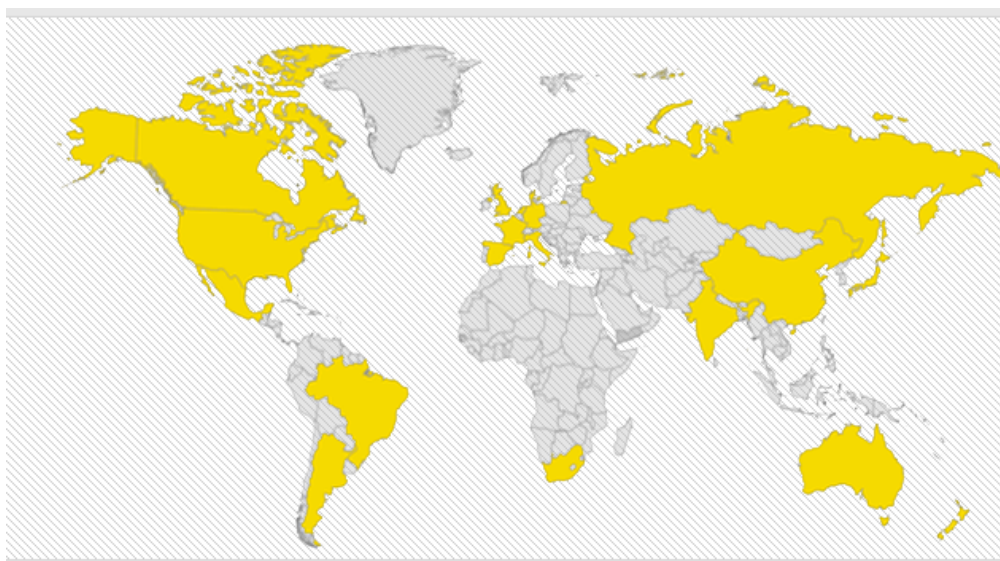
2. Management of WP2 – persons involved

Various persons of Animal Health division of INRA are involved in WP2.

- **Leaders**
    - Thierry Pineau (Head of Animal Health division)
    - Christian Ducrot (Deputy head of Animal Health division)

- **Information management Team in Toulouse (France)**
    - Marie-Colette Fauré
    - Katel Belaygue
    - Mélina Millox

- **Service provider of the Web Portal in Clermont-Ferrand (France)**
    Jocelyn de Goer

3. Countries involved

The database incorporates the initial STAR-IDAZ partners as well as many other countries involved in the Regional Networks. There are 22 initial STAR-IDAZ partners located in 17 countries (including 3 industrial partners + 4 associated partners).
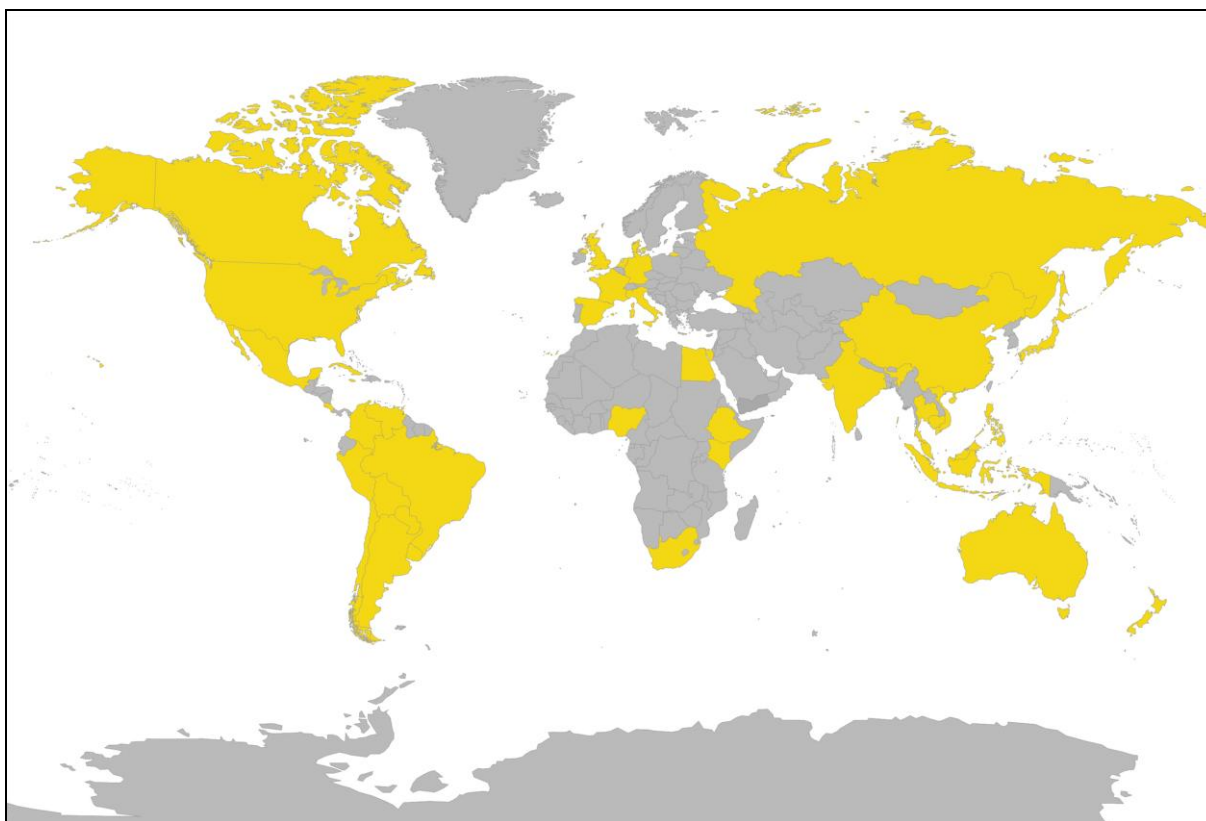

Original STAR-IDAZ Partner Countries

- Argentina
- Australia
- Brazil
- Canada
- China
- France
- Germany
- India
- Italy
- Japan
- Mexico
- Netherlands
- New Zealand
- Russia
- Spain
- United Kingdom
- United States

23 new countries have been incorporated through the Regional Networks since the STAR-IDAZ Project began (i.e., 40 countries).

- Bolivia
- Cambodia
- Chile
- Colombia
- Costa Rica
- Cuba
- Egypt
- Ethiopia
- Indonesia
- Jamaica
- Kenya

- Malaysia
- Nigeria
- Paraguay
- Peru
- Philippines
- South Africa
- Thailand
- Trinidad and Tobago
- Uruguay
- Venezuela
- Viet Nam

STAR-IDAZ : 40 countries in November 2012

4. Distribution of the countries by region

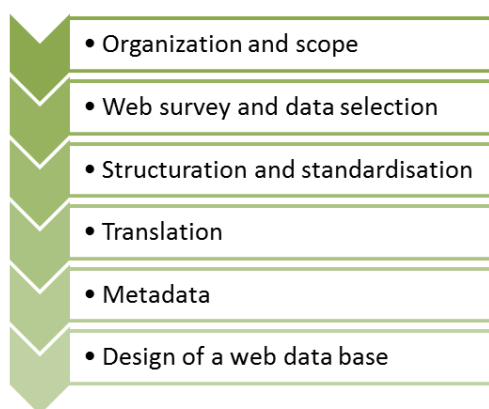| Africa & Middle East	Americas	Asia & Australia	Europe
- Ethiopia - Egypt - Kenya - Nigeria - South Africa	- Argentina - Bolivia - Brazil - Canada - Chile - Colombia - Costa Rica - Cuba - Jamaica - Mexico - Paraguay - Peru - Trinidad and Tobago - United States - Uruguay - Venezuela	- Australia - Cambodia - China - India - Indonesia - Japan - Malaysia - New Zealand - Philippines - Thailand - Viet Nam	- Denmark - France - Germany - Italy - Netherlands - Russia - Spain - United Kingdom

B. Project schedule

The creation of the database (Research organisation database) went on as follows:

- March-June 2011 : data pre-collection via web-survey
- Kick-off meeting : checking of the pre-collection data by some of the partners
- September 2011 : model of data structure (CSV file)
- October - December 2011 : data collection
- October 2011-April 2012 : data structure, translation, adding of metadata
- October - December 2011: back office conception
- December 2011 : portal design (service provider)
- January 2012 - April 2012 : Front office creation (service provider)
- from April 2012 on : data validation by the partners
- 17-18 June 2012: Bangkok meeting - presentation of the database and of the WP2 website to the partners
- October - November 2012 : Project opened to new countries in South East Asia, South America and Africa

C. Methodology

We used the following methodology (from data compiled from web survey to diffusion on the web portal) to build the database.

- Organization and scope
- Web survey and data selection
- Structuration and standardisation
- Translation
- Metadata
- Design of a web data base

1. A web survey and data selection

To make the partners' work easier, we chose to start collecting data from research organisations websites in partner countries. Then the partners were involved in the validation of the gathered data, and they are responsible for the updating of the database.

For each country, we proceeded as follows:

- systematic survey of websites for all the research organisations identified in the WOS (Web of Science – Thomson Reuters database), for agriculture and research departments and ministries ;
- research through search engines ;
- surveillance of the organisations.

2. Collected data - Structure and standardization

The data collected on websites was gradually added to an Excel file (1 file per country). For each information category, the data was then distributed among four parts as can be seen on the portal:

The information was structured as follows:

Research organisations	Funding organisations	Programs	Infrastructures
Full name Acronym English translation Number of people working in animal health research Annual research budget Currency Year Leaders or corresponding researchers Affiliations (name of parent agency or ministry) Institution URL Funding Researchers main activities / characteristics in the field of animal health Additional information Keywords Attached files	Name of institution Acronym English translation URL Additional information Attached files Programs linked	Name of program Funding organisation Acronym Funding organisation that initiated the program URL Research area (program scope) Countries involved Date (Opening date and Closure date) Period in months Budget amount Additional information Keywords Attached files	Name of infrastructure Acronym English translation Location (City, country) URL Parent organisation Main characteristics Number of people working in the infrastructure Annual budget Name of leaders Additional information Keywords Attached files

3. Translation

For a certain number of countries, the data was collected in the country's language. The name of the research or funding organisation, of the program or the infrastructure was kept in the original language (except for countries with non Latin alphabets). This name was also translated into English. The whole metadata were inserted in English.

4. Metadata

Extra metadata (for ex: description, key words…) are added to purely descriptive information. This information will provide more thorough analyzes and more relevant research possibilities.

5. Design of a web database / portal

The database was developed and portal created in three broad steps:

- Data Import from the Excel file in a SQL database
- Design of a back office (INRA ITM - Toulouse)
- Design of a front office (INRA ITM - Toulouse and Kaliop)

Technical elements are described in Annex 1.

6. Validation by the partners

Before the portal was available on the internet, STAR-IDAZ partners could correct, complete and validate the portal data through the application's back office. They have permanent secured access to it so they can add information throughout the duration of the STAR-IDAZ project.

D. The information portal -

http://www.star-idaz-wp2.net

The WP2 portal was designed according to the following characteristics:

- Maintain a strong identity with STAR-IDAZ website (Graphic design, link to www.star-idaz.net, news by RSS)
- Access to both databases (Color code and specific icon for each database): Publication database and **Research Organisation Database.**

The online portal is open to the public.

Access to the back office, for correcting and adding data, is limited (with a password) to each partner.

Portal homepage: **http://www.star-idaz-wp2.net/**

Easy browsing with different Search features

To make browsing easier, the portal offers different search modes: by geolocation, by category, by country…

by a simple search box

by geolocation

by region or countries

by category

Search refinement

The portal also offers the possibility to browse the search results in a simple way. For example, a search in the "Programs" category leads to the complete list of all the programs in the database by alphabetical order. Searches can be refined by selecting a country in the list on the right hand side of the screen.
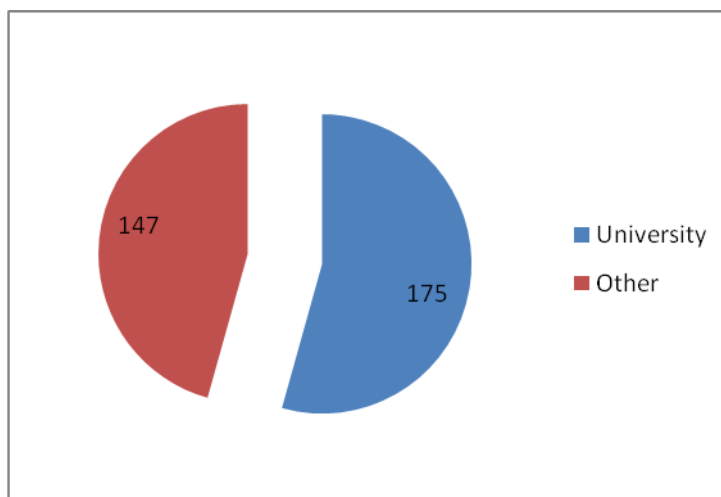
E. Information collected: some figures

Around 600 structures or programs have been described and displayed by country and in four categories (research organisations, funding agencies, research programs, infrastructures).

It is important to note that this data can be incomplete, in particular regarding research programs, that might not all be referred to on websites. The partner countries have the responsibility to update and complete this data.

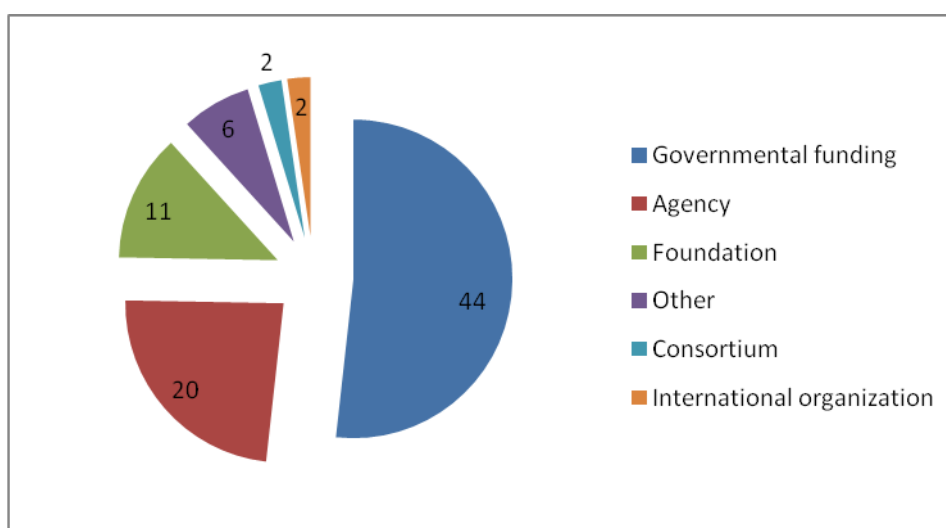| Country	Research organisation	Funding organisation	Programme	Infrastructure
Argentina	8	3	0	2
Australia	13	1	9	1
Bolivia	3	1	0	0
Brazil	19	6	7	2
Cambodia	4	2	3	0
Canada	12	0	3	4
Chile	3	3	0	0
China	57	3	0	2
Colombia	1	1	0	0
Costa Rica	3	1	0	1
Cuba	3	0	0	0
Denmark	5	12	13	0
Egypt	8	2	0	0
Ethiopia	3	2	1	1
France	11	4	5	4
Germany	13	4	2	3
India	7	1	0	1
Indonesia	6	2	0	0
Italy	10	1	1	1
Jamaica	3	1	0	0
Japan	6	1	0	1
Kenya	6	2	1	3
Malaysia	8	1	0	0
Mexico	8	5	1	2
Netherlands	8	1	3	4
New Zealand	13	3	7	2
Nigeria	3	0	0	1
Paraguay	2	2	0	0
Peru	4	1	0	0
Philippines	5	1	0	0
Russia	7	2	3	4
South Africa	4	0	1	0
Spain	8	2	5	2
Thailand	12	2	0	0
Trinidad and Tobago	2	1	0	0
United Kingdom	10	6	27	4
United States	11	1	15	19
Uruguay	3	2	0	0
Venezuela	3	1	0	0
Viet Nam	7	1	0	0
	322	**85**	**107**	**64**

1.   Research organisations

The portal includes **322 research organisations in the 40 target countries**. This data, compared to the publications data, gives an overview fairly close to reality. Fifty four percent of these organisations are within universities, whereas 46% are public or private research institutes.

Type of Research Organisation

2.   Funding agencies

The web survey allowed distinguishing 85 funding organisations throughout the 40 countries. See below the exact distribution:
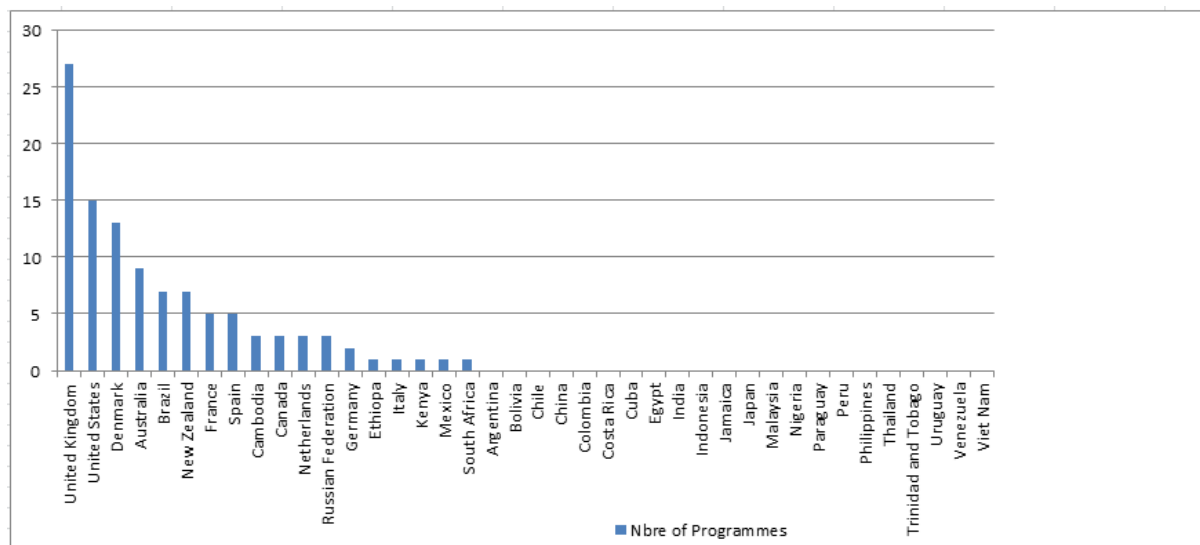

Type of Funding Organisation

3. Programs

108 research programs have been identified so far. For more than half the countries, no information on any program could be found. Two reasons can explain this result:

- The difficulty to find information on programs. On the one hand, this information is often published during a limited period (at the time of the call for project) and on the other hand, research organisations taking part in programs do not always mention it on their website.
- Few programs were added by the partners during the data validation phase.
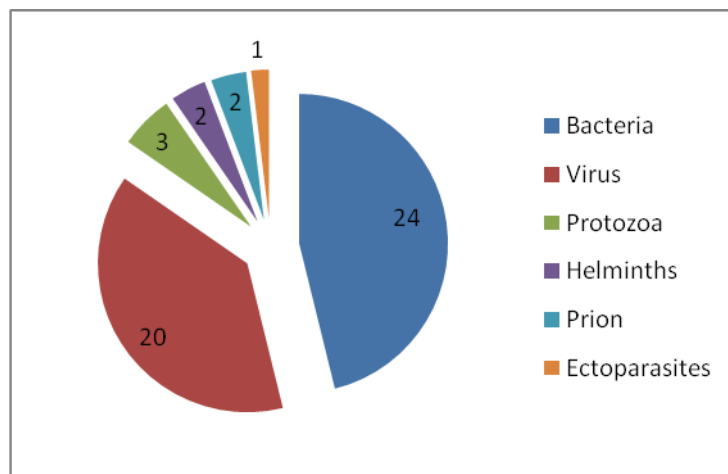

Number of programs per country

Programs involving one or several countries

14 multi-countries programs can be found in the database.

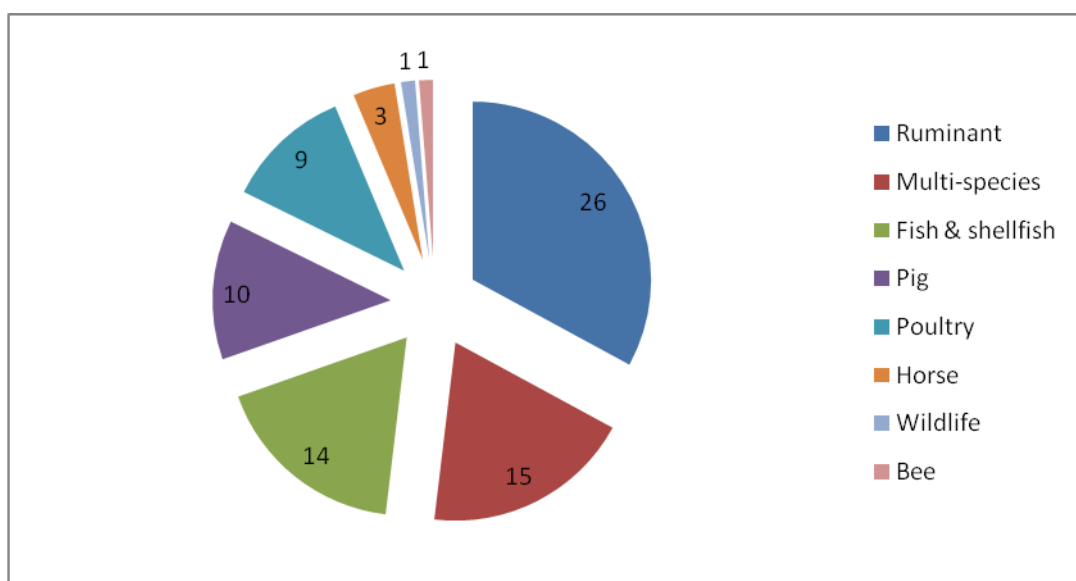| Programme	country
Ecology and evolution of infectious diseases	United Kingdom, United States
Network for Animal Diseases and Infectiology Research	France, Spain, Denmark, Germany, Italy, Netherlands, Norway ,Israel, United Kingdom
Ecology of infectious diseases	United Kingdom,United States
Eranet ANIHWA - Animal Health and Welfare	Austria, France
Farmed animal disease and health	United Kingdom, India
Management of Emerging Risks in South East Asia	Thailand, Laos, Cambodia, Philipinnes, Viet nam
Environmental animal health management	Laos, Cambodia, Philipinnes, Viet nam
Australian Centre for International Agricultural Research	Australia, Cambodia
ANIMAL HEALTH IMPROVEMENT: Investigation towards intervention on major endemic and emerging livestock diseases of economic and zoonotic importance	Ethiopia, Laos
Livestock and Fish research program	Mali, Uganda, Viet Nam, Tanzania, Honduras, Nicaragua, India, Egypt
ASFORCE: Targeted research effort on African swine fever	Spain, France, Portugal
Transboundary Animal Diseases in East Africa	Denmark, East Africa
Controlling African Animal Trypanosomosis	United Kingdom, Africa

The targeted pathogen agents

Out of the 108 collected programs, **56 (51.8 %)** do not focus on a specific pathogen agent, but deal with a wide spectrum of pathogens. The other 52 programs focus almost equally on viruses and bacteria.

Distribution by pathogen, for the 52 programs where the pathogen is specified
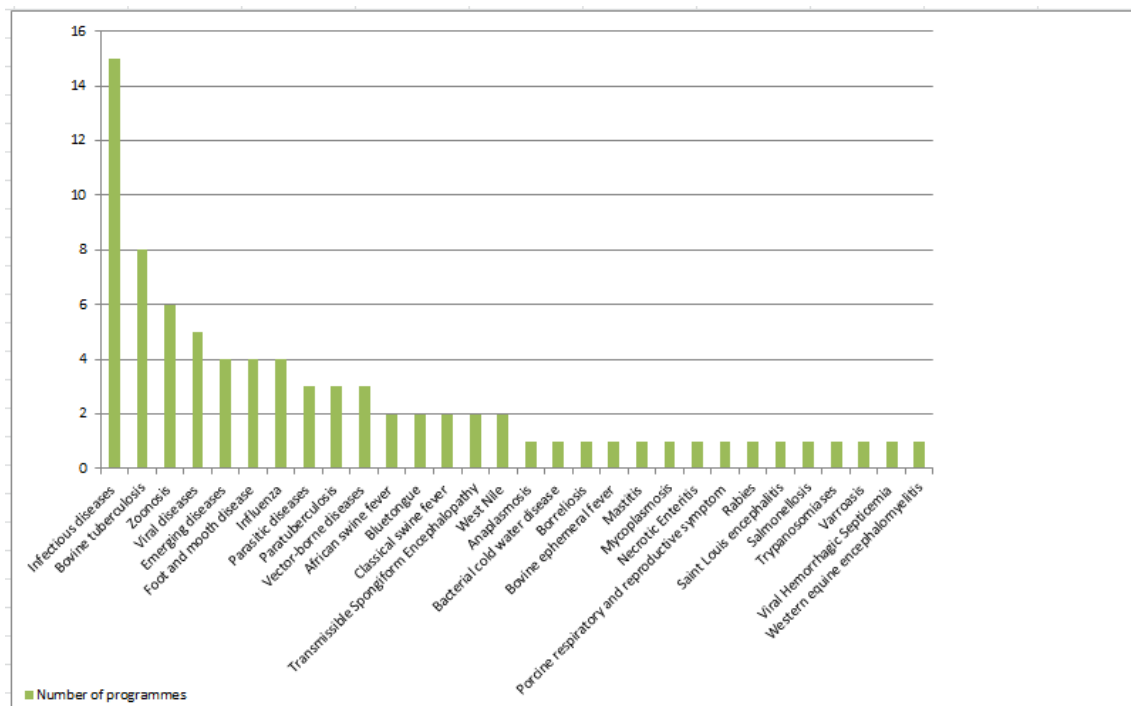
Targeted animal species

Out of 108 programs, **31 (28,7 %)** do not focus specifically on one or several species. About 14% of programs deal with livestock in general.

Distribution of programs per animal species for the 79 programs where the species is specified

The diseases

Out of 108 programs, **60 do not specify what disease they focus** on; for the 48 other programs diseases are mentioned, as showed in the graph below.
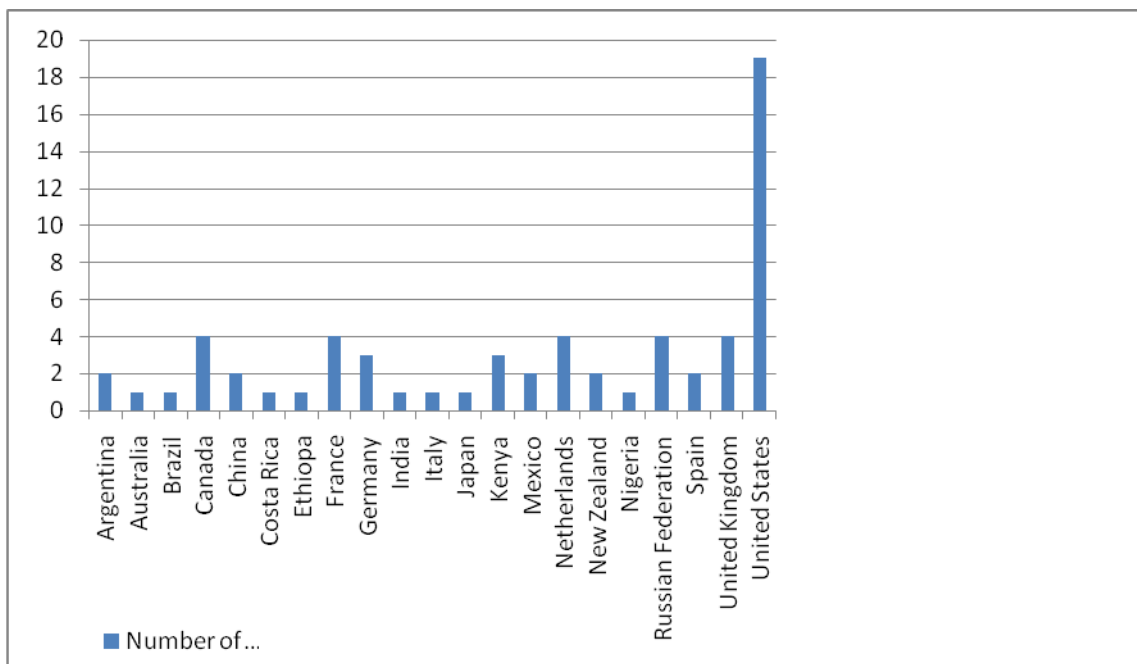

Number of programs per disease
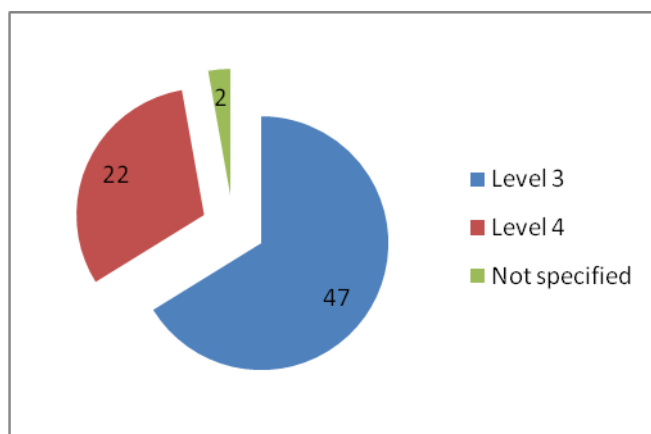
4. Infrastructures

64 high level containment research infrastructures were identified through the web survey. This data is fairly accurate. It was obtained :

- On research organisations' websites
- By queries on search engines, using very specific keywords

Some of the infrastructures are more 'human-oriented' laboratories, but zoonotic pathogens are handled too.

Number of infrastructures per country

Distribution by level of containment

NB: one infrastructure can have level 3 and level 4 facilities.

Conclusion

The research organisation database includes 322 research organisations in 40 countries, as well as 64 research infrastructures, 85 funding institutions, and presently 108 research programs.

As it was said in the introduction, it constitutes an overview of how research is organized on livestock infectious diseases in those 40 countries, and it is used by work-packages leaders of the STAR-IDAZ project to achieve the work assigned to them.

Moreover, it is accessible online to the public - from the scientific sector or otherwise. The partners are responsible for updating it on a regular basis, thanks to secured access to the back office.

Annex 1
Project technical context

A. Hardware and database

The database, as well as the research (front office) and management (back office) interfaces are hosted on the server of the EPIA Research Unit (Clermont-Ferrand INRA center). The data is saved on a MySQL database on the same server. The server's characteristics are as follows:

- 4 Intel Xeon processors

- 40 Go hard drive

- 8 Go RAM

- Système d'exploitation : Ubuntu server 10.04

- Web Server: Apache 2, PHP 5 and MySQL 5.1

B. Software

Existing applications are developed with Php using diverse libraries (PEAR …) and Ajax. They are built according to a MVC model, that allows style and functionality separation. The required development should use the same structure and the same language (Php) to generate the queries and xhtml pages, but the service provider **, in agreement with the client**, has a certain freedom of choice for libraries and frameworks that would seem more relevant. The development should integrate the graphic design defined for existing applications.

Documentation on the structure and comments on the code are required in order to make the maintenance and later adaptations easier. The code should be published under free license.