IMAGE : a project for animal genetic resources

IMAGE aims at enhancing the use of genetic collections[1] and upgrading animal gene bank[2] management. IMAGE will further develop genomic methodologies, biotechnologies and bioinformatics for a better knowledge and exploitation of animal genetic resources.[3]

The kick-off meeting of the H2020 IMAGE project took place in Paris, 19-20 May 2016. It gathered 50 participants from 11 European countries and one non-EU country, Colombia.

IMAGE stands for Innovative Management of Animal Genetic resources. It started on 1 March 2016 and unites 28 partners, including three SMEs, three NGOs, the Food and Agriculture Organization FAO, nine research institutions, 11 higher education and research institutions, and INRA Transfert, a subsidiary from INRA, the co-ordinating partner. 13 EU countries are involved, together with Switzerland and four non-European countries: Argentina, Colombia, Egypt and Morocco.

The ultimate goal of the project is to demonstrate the benefits brought by gene banks to the development of more sustainable livestock farming systems. The main approaches of IMAGE were presented:

- Involving the stakeholders from the beginning: a first meeting will take place at the opening of the 67th annual meeting of the European Association of Animal Production (EAAP) in Belfast, Northern Ireland, on 28 August 2016; different types of stakeholders are relevant for IMAGE and targeted meetings may be needed on a case by case basis;
- Improving the reproductive quality of the gene bank samples and their 'usability' in the field, with the development of new protocols and the perspective to assess the potential of new technologies to improve the cost-efficiency of using gene bank samples;
- Improving the connection between gene bank managers and supporting the set-up of the European Gene Bank Network for Animal Genetic Resources (EUGENA) in connection with the European Regional Focal Point;
- Assessing the potential of genetic diversity present in genetic collections by genomics and data integration;
- Facilitating access to information and resources by developing a new model for data integration in a web portal, and registering collections into the BioSamples database of EMBL-EBI;
- Developing, testing and demonstrating strategies and scenarios to facilitate the use of this diversity and to enhance synergy between gene banks and on-farm management of genetic resources; and
- Increasing awareness about the value of gene banks by a multi-faceted dissemination programme, including decision support tools for breeds and North-South workshops for capacity building.

The project is organised in six research work packages (WP), one dissemination WP and the management WP. The kick-off included a half-day devoted to WP meetings and exchanges between WPs in order to facilitate collaborations between them. First priorities are to launch surveys for 1) gene bank managers and 2) stakeholders, and to map available molecular data on gene bank collections in order to identify gaps and to define priorities for further characterisation through whole genome sequencing. At the same time, studies aimed at improving reproductive biotechnologies will be starting. Raising awareness about the value of animal gene banks will contribute to popularising them in the society as a whole, since they represent both a heritage and a resource for the future.

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[1] Animal genetic collections are sets of biological samples, either of reproductive (semen, embryos etc.) or other biological material (DNA, blood etc.) obtained from animal genetic resources

[2] Gene banks are infrastructures aimed at collecting, storing and documenting genetic collections for research and breeding

[3] Animal genetic resources are made up of all animal populations obtained as a result of domestication and selection

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