

GenRes Bridge



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Pilot: Livestock Genebank Peer Reviews

Observations and conclusions based on one cycle of three animal genebank peer reviews.

Background

Complementary to *in situ* conservation, countries in Europe have established genebanks for the (long term) *ex situ* conservation of farm animal genetic diversity. The FAO Global Plan of Action on Animal Genetic Resources, as well as the UN Sustainable Development Goals (Target 2.5) recognize the relevance of genebanks for the conservation and sustainable use of genetic resources.

Within Europe, the European Regional Focal Point (ERFP) initiated the development of the European Genebank Network for Animal Genetic Resources (EUGENA). The aim of EUGENA and ERFP is to exchange information, knowledge and experiences between genebanks and countries, to support further development and professionalization of national genebanks, and to create a network that collectively conserves animal genetic resources in genebanks.

To streamline and to strengthen the conservation and sustainable use of genetic resources in Europe in different domains (plant, animal and forest genetic resources) and to explore cooperation between domains, ERFP cooperates in the EU Horizon 2020 funded GenResBridge project¹.

Within GenResBridge project a system of peer reviews has been set up aiming to improve the quality of European genebanks by simply having the experts of these genebanks visit each other, giving full transparency about the facilities and protocols, and having discussions about these. Reviewers provide recommendations to the hosting genebank.

A pilot of these genebank peer reviews is being organised in the second half of 2021, involving the French national Cryobank at Institut de l'Élevage and French National Laboratory for Health Control of Breeding Animals (Paris, France), the Dutch national genebank at Centre for Genetic Resources, the Netherlands at Wageningen University & Research (Wageningen, the Netherlands) and the Slovenian national genebank at University of Ljubljana, Biotechnical Faculty (Ljubljana, Slovenia) focussing on the animal genetic resources (AnGR) collections.



Figure 1: Liquid nitrogen tanks, ordered per species at Wageningen, the Netherlands.

The reviews were held on September 13th and 14th in France, September 15th and 16th in the Netherlands and on October 5th and 6th in Slovenia. The review committee consisted of Danijela Bojkovski (National genebank of Slovenia at University of Ljubljana, Biotechnical Faculty), Delphine Duclos (French national genebank at Institut de l'Élevage), Marjolein Neuteboom, Mira Schoon and Sipke Joost Hiemstra (Dutch national genebank of Centre for Genetic Resources, the Netherlands at Wageningen University & Research). After each visit a report was written with observations and recommendations.

¹ www.genresbridge.eu. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 817580

Observations

The following general observations and conclusions are based on one cycle of three national animal genebank peer reviews.

The concept

The overall impression of the genebank reviews was that this is a very useful exercise, both for the hosting genebank and its staff, and for the reviewers visiting another genebank. Comparison of the three national livestock genebanks clearly shows both similarities and differences between the genebanks. Sharing experiences and knowledge was beneficial for all three genebanks and resulted in new ideas and inspiration. The reviews generated critical questions, useful suggestions and constructive recommendations.

The recommendations listed in the individual reports will help the genebanks to further develop their work and priorities.

Team size and team composition

The review team visiting a genebank consisted of between one and three experts of the other two countries. The choice of three relatively different genebanks in this first cycle of reviews was very positive; two genebanks with long experiences but still very different organizational structures versus one younger genebank; one genebank already with a certified quality management system, the second in the process to obtain this and the third not having this objective for the moment.

A team of three genebanks was an adequate number. It limits the number of visits to the other countries and one as a host, but still allows having a review team of at least two reviewers during the visits. This group size of three genebanks allows in depth discussions and a trustworthy atmosphere to share all aspects. In addition, it is recommended that the review team consists of experts which have different expertise and background. Hence, participating genebanks could make available between one and three staff members to visit other genebanks for the purpose of the peer review. The most profitable is when the receiving genebank can involve all relevant staff in the review process.

Groups up to a maximum of four to five genebanks would also be possible. For larger groups a rotational system could be implemented, for example ten participating genebanks where each genebank is visited and reviewed by two experts.



Figure 2: Review group and hosts at main storage facility of French national cryobank at LNCR.

Transparency

All the participating genebanks gave complete transparency, in terms of access to information, facilities and staff. This resulted in excellent discussions about strengths and opportunities for improvements. The trustworthy atmosphere in combination with the transparency is the key to success of such a peer review approach.

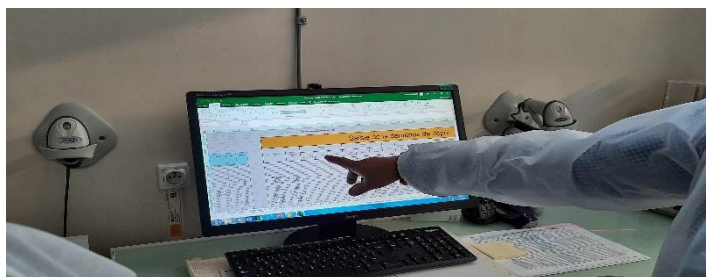


Figure 2: All facilitating genebanks gave complete transparency in all databases, documents and protocols.

Reporting

Review reports are short and to the point, listing only major observations and associated recommendations. Having longer reports would require too much time from the reviewers and small details are already discussed during the meeting. For reporting, it was useful to share and discuss the first observations of the reviewers already at the end of the review meeting.

The report was further elaborated after the meeting via email, and if necessary via online meetings. All members of the review panel contributed to the report, agreeing on who will take the initiative to writing up the.

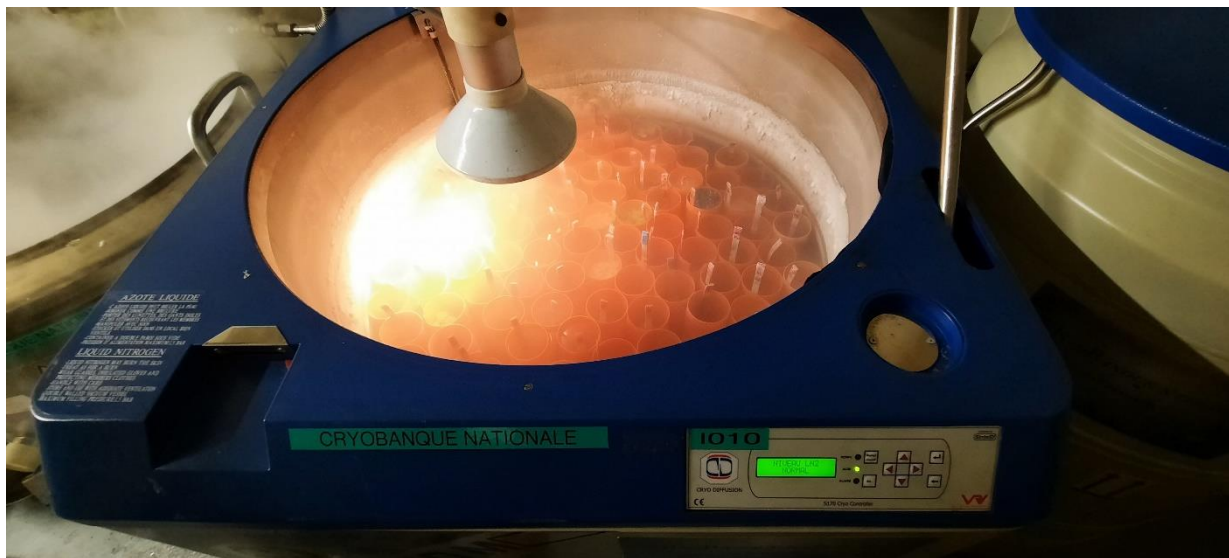


Figure 3: The liquid nitrogen tanks at the French national cryobank at LNCR were accommodated with mobile suction and light systems.

Funding

This first round of peer reviews was co-funded by the GenResBridge project. A well-functioning and sustainable peer review system requires funding, especially when more genebanks are involved. In particular, funding is needed to cover travel costs. Local costs could be largely covered by the hosting genebank.

Personal observations of members of the review panel

Personal observations Marjolein Neuteboom (Wageningen, the Netherlands)

By joining the review panel, I hoped to gain new insights from reviewing other genebanks in combination with getting recommendations from the panel when visiting our genebank. This expectation was definitely fulfilled. All genebanks function differently and these differences created great discussions about the positive and negative aspects of these differences. We discussed, for example, on whether or not the genebank should have full ownership of the stored material and how to organize duplicate collections. Also differences in practices were discussed, resulting in sharing of specific protocols which would not have been shared otherwise. For example we did not have good results with freezing epididymal boar semen yet, while Slovenia is actively doing this. This happened to be the other way around for epididymal ram semen. We agreed to share protocols. The final recommendations help us in prioritizing our future actions. Sharing knowledge and experiences by visiting other genebanks should also be extended to the technical people working in the genebank, as this is very specialized work and there are not many "peers" around except at other genebanks, often across borders.

Personal observations Danijela Bojkovski (Ljubjana, Slovenia)

Collaborating in this peer review of genebanks was really a huge challenge, especially when you are opening your door to the experts of the most developed and organized genebanks in Europe. Our genebank is probably still developing and material untouchable. We got information on really practical and important issues such as security, organization of storage, health aspects and simple management practices. For me, it was valuable to get advice about ownership of the material, which is not considered when taking material from breeders. Most important aspect of the visit was also to share knowledge and information on the future developments.

Personal observations Delphine Duclos (Paris, France)

The experience of these three peer reviews was very interesting. Each genebank has its own strengths and weaknesses and it was very useful to share them to better understand how each genebank is working and have new ideas for our own genebank. The main point for me was to see how other countries manage to be more pragmatic to obtain genetic material whereas we are faced with an overly strict interpretation of the European sanitary legal framework. The priority for small local breeds is to obtain genetic material, even though the quality and the sanitary controls are not the same as for commercial purposes. We will have to work particularly on this aspect.

Conclusions

The following conclusions were drawn, unanimously, by the reviewers involved in the first cycle of genebank peer reviews:

- The genebank peer reviews are an excellent way of sharing knowledge and thereby very useful for both reviewers and the hosting genebank itself.
- Preparing for the review via the genebank self-assessment report was useful, both for the reviewers to have a first impression of the genebank, and for the hosting genebank itself as a good starting point for the presentations and discussions. The self-assessment template could be further improved on the basis of the pilot-review experiences.
- Take some time for the final discussion at the end of each visit and to finish with a joint SWOT-analysis is a good way to round up all topics. By talking through the strengths and weaknesses of the genebank in question it also gives an excellent starting point for the review report and to draw up most important conclusions, advice and recommendations.
- Involving three genebanks in one round of peer reviews was effective, however other team sizes could work as well. Larger group size would require a slightly different set-up and the trustworthy atmosphere related to the transparency on all aspects should be considered.

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