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International data exchange for the recording and traceability of worldwide artificial inseminations: a new and modern concept

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Semen production from the semen collection center to the field and then insemination of cows require reliable recording and strict traceability. During the last 20 years, many countries have developed national barcodes printing systems on straws in order to provide such a rigorous traceability. Unfortunately, these technologies only work at a national scale and are hardly usable in other technical environments. On the other hand, worldwide trade of semen has regularly increased and safe traceability has become a main issue, especially when considering sanitary security and reliable origin of genes.

In the frame of its missions, the ICAR Artificial Insemination and Related Technologies Working Group (AI&RT-WG) is aiming at implementing an international data exchange system gathering all information regarding any proven bovine sire used anywhere in the world and whatever the Semen Collection Centre (SCC) where the semen was produced. The goal is to provide reliable statistics and information about genes exchanges all around the planet and to secure linked sanitary issues.

As a first step, the following concept has to be proven:

- any AI technician in the fields inseminating a bovine female can connect himself to the international query system from a mobile connected device
- key entrance code to the international database will be three digits NAAB code identifying any SCC in the world added to the current barcode used by the SCC.
- any SCC will be free, in addition to the information printed on straw, to include various information within its own file using dedicated application programming interfaces (API) in the exchange system: genetics, genomics, sanitary, genealogy,...
- connection from the fields to the databases will be done thanks to an API giving access to individual SCC information
- minimum information will be the full deciphered content of the printed barcode
- maximum information available will have no limit and will be property of the SCC owner of the sire. The second step will consist in:
- finding partners to develop and evaluate the technical feasibility of the concept: two or three different countries (not limited) representatives from different continents (if possible).
- evaluating the total costs, advantages and drawbacks of the system

The third step will deal with the funding of such a project, if possible, via official international institutions.

Artificial insemination, traceability, records, application programming interface, worldwide database, proof of concept.