
Report of the ICAR Task Force on Pig Recording

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Pig recording and genetic evaluation is pure responsibility of breeding programs in some extend required by state regulations (EU, for example). The exchange of testing schemes, recording systems, genetic evaluation as well as herd management is limited mainly to personal contacts between breeding programs. In cattle breeding, ICAR and Interbull set up the system the breeding organizations may use at every stage of development they are. If they just joined ICAR and Interbull, publications would be a large help to choose one of the proven procedures. On the other side, already running breeding programs can obtain many services or tools to solve their problems or serve their needs. The activity boost up software development in genetic evaluation and herd management. The exchange of experience in data management and its evaluation helps up to built efficient solutions for individual breeding programs. Competitiveness among cattle breeders was one of the reason for quick development in recording systems, genetic evaluation, and other usage of data. In addition, cattle breeding have gained much from international genetic evaluation of bulls which can be used also for decision making which bulls from foreign populations may be selected to upgrade local populations. The similar activities may be offered to pig breeding organizations.

The main objective of the paper is to give a short report about an interest in international cooperation in area of pig recording, genetic evaluation, and exchange of EBV's. The basic for the proposition was base on the survey in 2006 and personal contacts.

Questionnaire contained 22 questions about breeding organization itself, their breeding schemes, recording system, genetic evaluation and the way of publishing results. At the end, they were asked if they see any need for international cooperation under ICAR organization due to standardization of pig recording. They were also asked for comments in case of agreement as well as disagreement.

The survey was send electronically to national breeding organizations, breeding societies, breeding companies, and researchers working in pig genetic evaluation. The letter gave some basic information about ICAR and the intention. In addition, we promised, that the informations will not be used for any other purposes. The receivers was asked to forward the questionnaire if they could not fill the survey.

Introduction

Survey

The addresses were collected from various sources: participants of international meetings concerning pig breeding and internet. The questionnaires sent are stored by authors.

Response

The way the survey was distributed, it was not expected that all receivers would return it. Nevertheless, the response on the survey was low. We received 14 answers from 13 countries. Most of the answers were received from Europe. There were Sweden, Finland and Estonia from northern Europe, Germany (Bavaria) and Switzerland from the middle, Italy from south, and a group of Slavic countries: Czech Republic, Slovak Republic, Slovenia, Croatia, and Serbia (two). There were only two answers from other continents, both from North America (USA, Canada). We received letter from Australia asking for additional information, but after that, there were no response. Although most of organizations declared themselves as national organization, some of them have not covered the whole pig breeding in a particular country while part of them have already been working internationally. In some countries, the breeding is done by some national or international breeding companies and other breeding societies. One explanation for low response may be that the questionnaire did not reach the right person.

The organizations responding declared themselves as national or herd-book breeding organizations. There were no answers from breeding companies. Two responses were negative, one was "not sure", and 11 positive. The positive and negative answers were expected. The large proportion of positive responses were most probably obtained while the questionnaire was returned mainly by people, who are interested in cooperation.

Some breeding organizations are taking care only for purebred populations while others implemented the full 3- or 4-way crossbreeding schemes. This become more and more important because information from crossbred populations become important in genetic evaluation of breeding stock. The number of traits included from only one trait up to 24 traits. There is also large discrepancies what information are collected and the way the data are stored. There are breeding programs still working with flat files and ad hoc applications while other use up-to date technologies. Easy manipulation of the data is necessity for efficient data usage for genetic evaluation and herd management as well. Genetic evaluation is performed as often as every day or as seldom as every second week. Answers to specific questions are presented in appendix. They show that breeding programs in pigs differed much from each other.

Arguments for negative response

Both negative responses were supported with arguments. The remarks were written by people that knew ICAR activities. In one case, the author expressed opinion which could be heard often from pig breeders when talking about international cooperation. Therefore, we will try to summarize them.

Firstly, they claim that breeding goals in pigs are quite different in different markets. "The market is very competitive and operates with scarce profit margin." The nucleus herds needs to be small, kept in specialized herds. Hybrids are used in production level can be quickly reproduced through relatively small multiplier population. The production cycle in pigs is much shorter than in other species.

Secondly, the breeding companies are not prepared to share their know-how regarding testing procedures and genetic evaluation. The pig companies must respond quickly to a new situation. The exchange of ideas between companies already exists, but without any obligation.

There are some countries that have built up some testing procedures to give independent results about performance of different hybrids. The trials should fit to the market situations hybrids are tested for. Thus, the test should be different.

In the other negative case, they acknowledge that exchange of genetic material is increasing. The main concern was that the cost might be greater than benefit. This concern would be heard probably more often if we got more responses from breeding companies.

Among positive answers, only two contained additional comments. From Nordic countries we learned that they already cooperate. They share the nuclei and have a large exchange of boar semen. They are interested for greater exchange of genetic material.

Even more encouraged message was sent from Canada. We are including their notice as it is. They wrote, "There has been significant exchange of genetics between Canada and other countries. Pigs and semen are imported in Canada. At the same time, Canadian genetics is also exported to several other countries around the world. In view of similar situation for other countries as well, there is need for comparing the EBVs from one country to the other. We have developed conversion equation for comparing French EBVs to Canadian equivalent. Similar comparison can be done with other countries as well that would really make a strong international collaboration in genetic evaluations." They even give an idea to extend international cooperation to genetic evaluation.

The responding countries already participate in ICAR activities and are its active members. The additional comments were received especially from countries that already have some experience with over border cooperation and exchange of genetic material. Thus, it is not easy to list the expectations. We will try to identify the most important points from contacts at different occasions and informal meetings. Thus, the list may still be incomplete. The important expectations may be grouped into following categories:

- International exchange of genetic material.
- Accounting for genotype environment interaction.
- Exchange of knowledge about pig recording and genetic material.
- Quality guarantee for genetic material.
- Help for setting up and running breeding programs.

From international cooperation, they see benefit in the exchange of genetic material. They have already started cooperation in some areas (Nordic countries, Canada-France) and they would like to see an extension of international activities. The international comparison of EBVs is needed because genotype environment interaction is also present in pigs. Thus, the breeding organizations would like to select robust pigs which may easily be adopted to different environments. To test the environment sensitivity, they need to get data from different rearing conditions.

Arguments for positive response

Discussion

In some countries, they would simply like to have some standards set up which will guarantee the quality of pigs sold from various breeding programs. Many times, company leaflets promise a lot of characteristics which are very appealing. However, closer look to their certificates shows that they are not reported and not included in the total merit index. The official regulations are limited to a certain country or a group of countries and usually require that the results shown are correct and obtained by acceptable procedure. Political decisions do not always reflect current knowledge in breeding and minimum standards for breeding animal is set very low - to two generation pedigree, for example.

On the other hand, breeding practice was almost stopped after transition in the East European countries. They did not apply modern methods for genetic evaluation. Thus, they might expect some help to rebuild their breeding programs with regards to know-how as well as easy access to the appropriate genetic material. There is a tendency to use locally adapted breeds in harsh environment from different reasons. There are different breeds under conservation scheme while others are used for intensive production, however with more emphasis on animal welfare and usage of local resources. Such production systems require more robust pigs.

The opinion, that pig breeding is so different from breeding other species, is not true. There are, of course, discrepancies based on generation interval, selection intensity, and reproduction rate. However, similar statistical methods are used to analyze the data in all species. The studies about generalization of information systems proved, that data structure in various species and in different production systems is very similar. How ICAR deals with different production systems can be seen in cattle and small ruminants.

Formation of task force

The willingness to participate actively in the working group under ICAR was shown by Canada, Slovakia, Denmark, and Slovenia. We would like to have one or two participants more. Because of their international cooperation, participation of France, Germany, Spain and/or USA will be appreciated. This group has large interest of international evaluation of breeding stock. At the same time they agree, that differences in data definition make the comparison more difficult.

In the near future, we intend to fill up the working group and set up priorities. It seems more natural to start with recording system and data definition, however, the group may be more interested also for faster results in international genetic evaluation.