

Q&A – Webinar – Bull Semen Proficiency test

Tuesday July 23rd, 2024

On July 23rd, 2024, the first two webinars were organized to give more background information on the recently announced **ICAR Proficiency Test on Bull Semen (PT-BS)**.

In two sessions, participants from all over the world joined and actively asked questions via the Q&A option. This document provides an insight in questions raised and answers given.

Questions are categorized according to

- Practical questions around the organization of the proficiency test
- Semen assessment complexity and other traits
- Objectives and follow-up of the proficiency test

Maybe you have additional questions? You are welcome to join the second series of webinars organized on September 9th, 2024. Please register via the following links:

[Monday 9 September 2024, 08:00-09:00 \(CET\)](#)

[Monday 9 September 2024, 15:00-16:00 \(CET\)](#)

Practical questions around the organization of the proficiency test

Q

It will be helpful if we can get access to the registration details to participate in the test.

A

The QR code can be used to find additional information on the ICAR Bull Semen Proficiency Test.



Or use the following link:

<https://www.icar.org/index.php/certifications/icar-proficiency-test-on-bull-semen-pt-bs/>

The registration page can be found at:

[ICAR Proficiency test Bull Semen registration page \(surveymethods.com\)](#)

Q

Do we have a known cost for the subscription to this scheme?

A

All the details, incl costs are provided in the subscription form.

[ICAR Proficiency test Bull Semen registration page \(surveymethods.com\)](#)

Q

How can we engage theriogenologist and geneticists in the semen proficiency test program along with AI labs and in AI Labs we may guess most of the time technicians are working behind microscopes rather than professional veterinarians or theriogenologists.

A

We encourage everyone to participate in this proficiency test. Breeding organizations, system suppliers but also research institutes and universities are welcome to register. The report will give you insights in your performance and benchmarking it against other participants.

Q

The same sample in different labs in different localities, how do we count for the time laps in transport, cold chain effects during transportation and mainly as you also mentioned expertise level of the persons working in labs, is there any way out for standardized training, although it may be massive yet may be started with selective labs.

A

The advantage of working with liquid nitrogen is that the sample remains stable. Straws will be produced by a certified laboratory and shipped according to requirements. Before accepted for distribution, the batches of straws are submitted to a homogeneity test to minimize variability between straws. Outcome of the results will depend among others on expertise of the technician performing the assessment. By measuring samples in duplicate and by including blind duplicates, the proficiency test will report your performance and benchmark it against (anonymous) the results of other participants. As an outcome of the proficiency test, the need to optimize procedures and training can be a follow-up step.

Semen assessment complexity and other traits

Q

It is also especially important to record the exact way of preparing the sample, like how thawing is done, how long in which temp of water, or how long between preparing the sample and doing the actual measurement, etc. Will that also be in the form we have to fill in?

A

Semen quality assessment is multifactorial. Which means that it is not only the assessment system itself, but also the process that affects the actual outcome. The design for the proficiency test includes a recommended protocol, for everyone to handle the samples in the same way. At the same time, it is known that normal processing protocols may differ. Therefore, along with the samples, a questionnaire will be provided for you to report how you would normally handle semen samples post thaw. In the questionnaire it will be important to record which system is used, but also how your assessment could deviate from recommended protocol. Analyzing your responses will be interesting! These responses will be collected, summarized, and presented anonymously.

Q

How do you compare the different media? E.g., synthetic, egg yolk, milk based?

A

Extender has an impact on performance of semen quality assessment systems. For this first proficiency test it was chosen to produce the straws in a clear, synthetic media. For future/follow-up tests, it will be discussed in the working group to include other media that are commercially used.

Q

In Australia we already have a proficiency test for morphology assessment. We need to have DIC mics x1000. Will this be part of the ICAR scheme in the future?

A

Morphology is another very important semen quality trait and the already available proficiency test for morphology assessment in Australia is well known. ICAR is open to extend the ICAR PT Bull Semen to other parameters, but it was decided to focus this first proficiency test on motility assessment systems, with an additional flow cytometry option for acrosome and membrane integrity.

Q

Motility can be quite different per breed, or location, so how can you judge whether it is good or bad if you do not have at least the breed?

A

The scoring option whether to approve or discard the sample is an optional part of the proficiency test, for the participant to give an indication of (next to the numerical value) how the samples would have been scored. It is not the aim to propose cut-off criteria. It will give a valuable insight on how the different participant would score a sample of bull semen.

Q

How do you factor in heat stress i.e., in countries that are hotter than 37.5?

A

Seasonal variation can definitely have an impact on semen quality. The ICAR proficiency test focuses just on the assessment system itself. Sample quantity and quality will vary between low, medium, and high, to mimic the large variation in samples a laboratory assess daily.

Q

Several types of slides will often give a wide variety of measures. What type of slides are you using for the standard, and why?

A

There is no recommend slide to use for the proficiency test, and not aimed to standardize at this stage. It is important to obtain the picture of the comparability and the procedures used in the laboratory based on the replies we will receive from the questionnaire. This information on the type of slide will be included in the questionnaire.

Q

Regarding flow cytometry, are "dying" sperm be recorded on the results? What is their importance on the analysis and fertility?

A

Post thaw semen quality is mainly tested directly after thawing but also tests in time (so called stress testing semen) is often used, with potential correlation with fertility. Current proficiency test focuses only (for now) on the measurement directly after thawing. But in a follow-up, additional testing could be included.

Objectives and follow-up of the proficiency test

Q

Perhaps this proficiency test should be renamed as a motility and concentration proficiency as otherwise once the lab receives this accreditation it would appear that they have proficiency in all elements (including morphology) not just motility and concentration.

A

It is important to make clear that current proficiency test focuses on semen concentration and motility traits, therefore, it is a good suggestion – thank you. However, proficiency test reports typically specify only the matrix to which they apply. Additional parameters can be added over time without necessarily changing the name.

Q

I would like to congratulate ICAR on this initiative. During the recent meeting of the Association for Applied Animal Andrology (AAAA) in Brazil, the lack of broader validation for semen assessment was highlighted as a significant issue. It is crucial to involve CASA companies, as comparing equipment setups across different brands can be challenging.

A

Thank you! Yes, the instrument manufacturers will be involved and are invited to join. By that, they have the possibility to evaluate the performance of their instruments and improve if necessary.

Q

What is the real benefit to participants as a participant of the proficiency test? How do we get value and payback from our customers?

A

Participants can assess whether their performance is comparable to other laboratories and determine if the comparability is acceptable. Organizing the proficiency test allows us to calculate method performance and precision, such as repeatability and reproducibility. Participants can verify if their results are consistent with the method.

Q

I understand why consistency across labs is important for somatic cell count, as these values will be submitted for national evaluations for mastitis. I would like to politely challenge you to describe what the motivation would be for different companies to want to have consistent motility results to other companies. Most likely each have calibrated their CASA systems using carefully defined methodologies and can tailor their motility cut-offs by validation against field fertility (e.g., using national fertility evaluations).

A

CASA systems, even those from the same manufacturer, will exhibit some variance in results, which is inherent in any analytical method. We will calculate the method's precision, which you can then associate with your results. Motility will be described by a value and its standard deviation of reproducibility. If CASA systems are well aligned, procedures from different countries used to evaluate fertility can be compared. However, the ICAR PT does not aim to evaluate individual procedures used for national fertility evaluations.

Furthermore, when exporting semen and the local laboratory of the receiving country will analyze the samples as well, there will be a large benefit in having consistent motility results.

Q

How can a participant get feedback from the "experts" on the results they receive and improve the way they work?

A

By participating in the Proficiency test, you can use the standard deviation of reproducibility to associate to your results and you can see if your results are in the population or are outliers.

By participating in the ICAR Working Group on Artificial Insemination, where anonymous results and questionnaires will be discussed and elaborated, delegates from ICAR member organizations can contribute. Participation is open to ICAR member delegates. To become an ICAR member visit: <https://www.icar.org/index.php/about-us-icar-facts/icar-members/membership/>