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SCIENCE FOR A FOOD-SECURE FUTURE

SUSTAINABLE ANIMAL AND AQUATIC FOODS

Consultative workshop on draft boar stud operation guidelines in support of the pig genetics value chain in Uganda

October 2026

Workshop report



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Acknowledgements

Authors: Karen Marshall (ILRI), Donald Kugonza (Makerere University), Martha Businge (ILRI), Emily Ouma (ILRI)

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Background and objectives

Uganda's pig sector is one of the fastest-growing in sub-Saharan Africa, with the national herd rising from 3.2 million animals in 2008 to 7.1 million in 2021 and over 2.2 million households engaged in pig production. Boar semen production is the genetic foundation of this sector, supplying artificial insemination (AI) service providers with the improved genetics needed to raise pig productivity on smallholder farms. Yet despite this growth, the sector operates without nationally agreed standards, certification, or regulatory oversight.

A recent study on the structural analysis of Uganda's pig semen value chain documented a disorganized and unregulated value chain, with significant challenges in semen storage and temperature maintenance, the high cost of imported genetics, and the absence of certification and registration systems. It also identified key recommendations to address these constraints and improve sector performance (Kasoro et al. 2025).

Under the CGIAR Sustainable Animal and Aquatic Foods (SAAF) program, ILRI is working to strengthen the pig genetics value chain in Uganda, supporting both AI service providers and boar studs. A set of draft Boar Stud Operation Guidelines was developed by Professor Donald Kugonza of Makerere University in consultation with ILRI. The guidelines are intended to become a national document, jointly owned by the boar stud sector and by the government decision-makers who will ultimately adopt them. This workshop was designed to give the key actors, especially the boar stud operators who will implement the guidelines day to day, a real role in shaping the content.

The consultative process reflects the commitment of ILRI and SAAF to co-developing practical solutions with the people closest to the challenge. By investing in stakeholder input before finalization, ILRI and SAAF aim to produce guidelines that have real buy-in, that reflect actual operating conditions in Uganda, and that boar stud owners and regulators alike can call their own.

Workshop objectives

- Review the draft Boar Stud Operation Guidelines and assess their relevance and applicability within the Ugandan context.
- Gather stakeholder feedback and recommendations, particularly from boar stud operators, to refine and co-develop the guidelines.
- Build shared ownership of the guidelines among key actors in the sector, including boar stud operators and government decision-makers.
- Agree next steps for validation and national adoption of the guidelines.

Workshop structure

Agenda summary

The workshop was held on 23 October 2026, Kampala, Uganda, and comprised four phases: (1) opening and contextual presentations, including welcome remarks from ILRI, opening remarks from the National Animal Genetics Resources Centre and Data Bank (NAGRC&DB), an overview of the SAAF program on pigs in Uganda (Emily Ouma, ILRI Uganda Country Representative), and a comprehensive overview of the draft guidelines (Professor Donald Kugonza, Makerere University); (2) small-group guideline review sessions, in which participants were randomly divided into three groups, each reviewing a different set of sections; (3) plenary feedback and discussion; and (4) a presentation of the pig semen sector study findings (Isaac Kasoro, ILRI/Makerere University) and closing remarks. The workshop was facilitated by Karen Marshall (ILRI). A detailed agenda is included in the Annex.

Participants

The workshop brought together 24 participants across the pig semen value chain, of whom 18 were men and 6 were women. Half the participants (12 of 24) were boar stud operators, so the people who will implement the guidelines did most of the reviewing. The remaining participants represented government institutions, regulatory bodies, development partners, and research and academia.

Participant category / Organization	Number	Men	Women
Boar stud operators	12	11	1
Government: National Animal Genetics Resources Centre and Data Bank (NAGRC&DB)	3	3	0
Uganda National Bureau of Standards (UNBS)	1	0	1
Food and Agriculture Organization of the United Nations (FAO Uganda)	1	1	0
Makerere University	2	2	0
International Livestock Research Institute (ILRI)	5	1	4
Total	24	18	6

Table 1. Workshop participants by organization.

Key discussions and outcomes

Following the opening presentations, including a comprehensive review of the draft guidelines presented by Professor Donald Kugonza (Makerere University), three parallel working groups each reviewed a different set of sections and reported to plenary. A facilitated plenary discussion followed. The workshop focused on Sections 1–2 (introduction, users, facility), Sections 6–7 and 9 (semen evaluation, extension, customer service), and Sections 11–12 (records, data management, regulatory framework). Participants are invited to submit written feedback on the remaining sections via email to the technical team by 9 November 2026. The workshop showed the strong commitment of boar stud operators to developing guidelines that are practical, enforceable, and genuinely theirs. Key themes and recommendations are summarized below, in document-section order.

Facility design, intended users, and definitions (Sections 1–2)

Participants called for a clear definition of "boar stud" at the outset of the guidelines, distinguishing between: (a) facilities that collect semen from their own boars; (b) facilities that collect semen and also provide AI services; and (c) facilities that import semen without keeping boars. These distinctions matter because each type carries different compliance obligations. Farmers and researchers were also identified as intended users who were absent from the current draft.

On facility requirements, participants recommended replacing generic terms such as "electricity" with performance-based language ("reliable power supply"). Each stud should be required to maintain a site ground plan. Biosecurity provisions should include vaccination schedules, for example against porcine reproductive and respiratory syndrome virus (PRRS) and parvovirus. Minor clarifications were also requested on flooring and collection unit requirements: sawdust bedding should be "changed" rather than "exchanged", floor slopes should be specified, and dummy sow height should be adjustable to suit boars of different sizes.

Semen evaluation, extension, and customer service (Sections 6–7 and 9)

On semen evaluation, the group recommended raising the minimum total motility threshold at expiry to above 70%, and setting explicit standards for studs that evaluate semen manually rather than with instruments, since most Ugandan studs rely on microscopic rather than photometric analysis. Measurements should be taken and recorded at every stage of semen extraction and processing.

Extenders should be classified by duration: short term (2–3 days), medium term (5–7 days), and long term (10–15 days), with appropriate storage and dispatch guidance for each.

On customer service, participants agreed that after-sales support builds farmer confidence in AI and directly supports the viability of studs. Suppliers should record all clients, follow up on conception outcomes and returns to heat, and maintain accessible contact channels. Gestation calendars should be mandatory for all studs. The group noted that information cards for farmers add to the cost of each dose and should be optional.

Records, data management, and regulatory framework (Sections 11–12)

The working group on records and data management gave the most feedback, which shows how much participants value traceability and accountability. Records should be accurate, legible, and retrievable, with allowance for both paper and digital tools given unreliable power and connectivity in some areas. Specific recommendations included:

- Boar cards to include the source of the boar, shipment date, and a unique identifier (not sequential numbers) assigned by a central registry at registration and later linked to a national identification system.
- Daily collection sheets to record attempted and successful collections, extender type, and the name of the technician.
- A recall procedure for semen batches in the event of a disease outbreak.
- A practical fertility-feedback mechanism (for example, SMS or a digital app) rather than merely stating that farmers "shall report" to their supplier. Operators noted that inseminators sometimes withhold or give wrong farmer contact details, breaking the feedback loop.

On the regulatory framework, participants noted that NAGRC&DB's primary role is data banking rather than sector oversight, and urged the guidelines to correct this. Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) officers responsible for registration and inspection should be named specifically rather than referred to generically as “commissioners”. The regulatory table should clearly distinguish registration, approval, and certification as distinct processes, with a licensing flowchart added.

NAGRC&DB described a cattle-semen database that could be extended to cover boar studs. ILRI confirmed that its AI service provider app will help providers track pregnancy rates and returns to heat. This was identified as a potential platform to close the farmer-feedback loop.

Cross-cutting themes from plenary discussion

Unique identifiers. Participants agreed that unique identifiers should be assigned by a central registering body at registration and later linked to a national identifier system. There was open discussion about whether MAAIF or NAGRC&DB should hold this responsibility; the technical team was asked to propose a clear assignment during the revision.

Recording as professional practice. Recording is essential at a professional level and is increasingly feasible through mobile phone tools. Linking recording requirements to registration and certification creates a practical incentive for compliance.

Sector challenges requiring policy attention. Operators raised systemic challenges the guidelines alone cannot address: difficulty maintaining semen viability and storage temperature during transport; high cost and import taxes on boar genetics and equipment; absence of locally manufactured inputs such as catheters and extenders; disease risks, especially African swine fever; weak regulatory follow-up after animal importation; and gaps in farmer knowledge and feedback. These issues were noted for follow-up in the broader SAAF pig genetics work.

Pig semen sector overview

Isaac Kasoro presented findings from his recently published study on the structural analysis of Uganda's pig semen value chain (Kasoro et al. 2025). The study mapped actor relationships, profiled the operational boar studs, and documented key challenges and opportunities. The findings, particularly the high attrition rate among studs and the unregulated value chain, showed why the guidelines are urgent and why the actors most affected need a central role in shaping them.

Next steps

Following the workshop, four key actions were agreed to advance the guidelines towards national adoption. Participants and the technical team will work together to consolidate feedback, refine the draft, and validate the final document - aiming to complete the process by the end of 2026. Guidance from NAGRC&DB and MAAIF on formal adoption under the Animal Breeding Act will be sought in early 2027.

Action	Responsible	Timeline
Receive written feedback from participants by email	All participants	9 November 2026
Draft next version of the guidelines, incorporating all feedback	Makerere/ILRI	November–December 2026
Validation workshop to review harmonized draft	ILRI/Makerere	Mid-December 2026
Finalize guidelines	Makerere/ILRI	End of 2026
Seek guidance from NAGRC&DB and MAAIF on adoption as a national document under the Animal Breeding Act	ILRI/Makerere	Early 2027

Table 2. Agreed next steps.

References

Kasoro, I., Kugonza, D.R. and Marshall, K. 2025. Structural analysis of Uganda's pig semen value chain. Journal of Agriculture and Rural Development in the Tropics and Subtropics 126(2): 159–169. https://doi.org/10.17170/kobra-2025052211171

Annex

Workshop agenda

Time	Activity
0830–0900	Registration and refreshments
0900–0915	Welcome remarks - Karen Marshall (ILRI)
0915–0930	Opening remarks - Dr. Jackson Mubiru on behalf of the NAGRC&DB Executive Director
0930–0950	Overview of the SAAF program on pigs in Uganda - Emily Ouma (ILRI Uganda Country Representative)
0950–1030	Overview of the draft Boar Stud Operation Guidelines - Professor Donald Kugonza (Makerere University)
1030–1200	Small-group review sessions (three parallel groups)
1200–1245	Plenary: group reports and discussion
1245–1315	Pig semen sector overview - Isaac Kasoro (ILRI/Makerere University)
1315–1330	Closing remarks - UNBS and NAGRC&DB representatives

Table A1. Workshop agenda, 23 October 2026.



Contact: animal_aquatic@cgiar.org

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