RESEARCH PROGRAM ON Livestock

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Livestock genetics flagship report

Guidelines for certification of improved rams from community-based breeding programs

Mourad Rekik[1], Aynalem Haile[1], Tesfaye Getachew[1], Barbara Wieland[2] and Barbara Rischkowsky[1]

[1]International Center for Agricultural Research in the Dry Areas

[2] International Livestock Research Institute

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ICARDA and ILRI are CGIAR research centres

ICARDA
Box 5689, Addis Ababa, Ethiopia
Phone: +251 11 617 2281
Fax: +251 11 617 2001
Email: icarda-Ethiopia@cgiar.org

ILRI
Box 5689, Addis Ababa, Ethiopia
Phone +251 11 617 2000
Fax +251 11 667 6923
Email ilri-ethiopia@cgiar.org

What does certification mean?

In a broad sense, certification is the means of guaranteeing the quality of a certain product and assuring agreed traits. In livestock production, animals are certified to fit to a particular purpose. Certified animals, in particular sires, have added value that will have an impact on the buyer's flock and should result in a monetary advantage. In addition to their breeding value for economically-important traits (growth, milk, reproductive efficiency…) and therefore the superiority of their performance, certified sires should be healthy (ideally disease-free) with a good libido and fertile. Regarding community-based breeding programs (CBBP's) for sheep in Ethiopia which have been adopted as the official approach for sheep breeding in the country, there is no sire certification. Rams are selected based on their pedigree and breeding value and then arbitrarily used within and outside the target communities. Certification of the selected rams could help specialized breeders to establish genetic-oriented business models and to sell animals at premium price. Rams' certification is a long process, requires sensitization and awareness of the main actors, a commitment of the public authorities and institutions in charge of livestock development and a change in the existing policies.

Why certification of improved rams in CBBP's?

In general, rams' certification is useful under three different circumstances:

1. Pre-sale check
2. Pre-breeding
3. Insurance

Levels of certification under these different circumstances may not be necessarily the same and may involve different examination processes and tests.

In the case of sheep CBBP's in Ethiopia, certification would be for breeding purposes and it will primarily guarantee to reduce the risk of potentially unsuitable rams being used for breeding. As also stated above, the certification process would empower the communities producing genetics to be more competitive in the market for sires.

A ram that passes all the requirements of the certification process (see below) should have no obvious physical abnormality that would render it unsuitable for natural service, and have the potential to be fully fertile based on semen quality and therefore suitable to be used in artificial insemination.

There are few examples in Ethiopia describing attempts to add value to circulating sires but none of these examples fit to the concept of full certification as described below. Some of these examples are:

- 1) Within some existing CBBP's, ear tagged animals are considered of higher value in comparison to non-tagged counterparts;
  2) Crossbred animals in South Wollo are sold at higher price if pedigree is testified;

3) Ministry of Livestock and Fishery (MOLF) started sensitization for certification in Borana communities, but no detailed implementation plan is available;
4) Debre Birhan Research Centre is producing certificates for breeding rams distributed in Menz district. Such certificates include full pedigree, birth weight, treatment and vaccines, external examination of genitalia;
5) National Artificial Insemination Centre (NAIC) certifies its own calves (HF, Jersey. Zebu breed) candidate to enter the centre including pedigree, phenotypic, breeding value, breeding soundness, general health, semen evaluation (motility, density, morphological defects). In addition, the National Animal Health Diagnostic and investigation Centre (NAHDIC) provides service to NAIC on screening the animals for diseases. The initial certification is carried out on-farm before purchase of the candidate calf and is then renewed every year in NAIC premises.

What is the facilitating environment for certification in Ethiopia?

Rams' certification is a long process and its advantages need to be clarified among all involved actors. It also requires a certain commitment and buy in from the main public institutions. The MLF already pays attention to accurate pedigree for sires and to high breeding efficiency of circulating sires. These 2 items are the foundations on which builds the certification process as described below. Recently in Ethiopia, a breeding policy was approved and is available in Amharic and English). Such a policy could provide the regulatory framework and further work needs to be done in order for the certification to fit into this policy. The technical and institutional guidelines to be produced and approved can be annexed to the existing breeding policy. Institutionally, the status of NAIC (which is a fully autonomous centre currently focusing on AI in dairy cattle) has been approved to evolve towards a National Animal Breeding Institute for all livestock species. The acquired experience by NAIC staff in certifying their candidate calves could be valorised in setting up the certification process for selected rams in CBBP's.

What are the elements/levels of certification?

In the following, we refer to rams of Ethiopian sheep breeds (Bonga, Menz, Horro, Doyogenna…) where CBBP's are implemented. Under these conditions, rams produced within the CBBP's with the aim to be used as sires are all identified, of known pedigree and are classified among other rams based on their breeding value and phenotype description.

The examination for certification is basically composed of 3 steps.

Step 1: Physical examination (see appendix for on-farm data collection form and examination certificate)

This step includes an assessment of the body condition score on a scale of 1 to 5 and a general clinical examination of the eyes, nose, mouth, conformation and limb soundness, feet, external genitalia, while heart and lungs should be auscultated. Scrotal circumference is an important item in the physical examination. Scrotum circumference indicates higher semen production but standards are breed-specific and feeding conditions need to be taken into account as well.

Following an initial examination at selection, it is generally accepted that rams should be examined annually in this way.

Step 2: Semen examination (see appendix for on-farm data collection form and examination certificate)

In addition to the physical examination, assessment of semen could be systematic for all selected rams, may be appropriate in circumstances which may include infertility investigations (flock or individual) and is highly recommended for sires to be extensively used in AI programs.

Step 3: Assessment of mating ability

Libido is difficult to assess and define, so this part of the examination simply confirms whether the farmer, the vet or the numerator has observed normal service behaviour and intromission when the ram was presented with females in oestrus. For yearling rams, the owner/purchaser has to observe the ram closely at the start of breeding period to monitor libido and mating ability.

Step 4: Testing/screening for infectious/contagious diseases

Laboratory analysis (certain infrastructure required) for testing diseases; e.g. Rose-Bengal for brucellosis is easy to do under field conditions; test kits for major diseases would be required which could be provided by NAHDIC but all need to be imported. In the general discussion it was agreed that it would be probably more effective instead of testing the health status to protect by vaccination the sires from the know reproductive diseases (e.g. Chlamydia; Toxoplasmosis, Q-fever, Border Disease, etc.) and other common diseases (e.g. Foot and Mouth Diseases, Sheep Pox…) and that the certification should include a standard vaccination record.

Who should be the certifying body?

The certifying body should be a trustworthy institution and there was a common understanding during the meeting that the official process should be led by MOLF. So far, work in this direction is being led by the research institutes which are located in proximity to CBBP sites. There has been very little involvement of the extension services. Ultimately, the certification process of improved rams should be fully endorsed by extension services and they should be made responsible for the ultimate stamp for certification. During the transition phase, we see both extension and research centres working together as the technical capacity is now available in the research centres. In a more realistic scenario for the mid-term, the technical certification can be undertaken by research centres where both logistics and human capacity are available. The extension services (not excluding the regional veterinary services) will be responsible of approving documents and stamping. In the long-term, 2 possibilities can emerge. One, where all the certification capacity is built within the extension services and a second one in which NAIC, with its new attributions of national breeding centre, takes over the certification process nationwide and for all livestock species. Whatever solution will be regarded by MOLF, the process should not be too complicated to make it feasible and different institutions have to work together.

What are the other concerns/questions around certification to be clarified?

During the meeting a number of questions and concerns were raised by the participants and we report herein the most relevant:

- How often does certification of rams be repeated? Step 1 of the certification can be repeated on a yearly basis. Steps 2 and 3 can be repeated if there is suspicion of individual or general infertility. For rams to be used in AI, semen evaluation should be undertaken prior to each AI campaign.
- Certification needs to be accompanied by awareness campaign and fully supported by extension system
- How to ensure that non-certified rams will be excluded from mating particularly in communal flocks?
- How to protect certified from non-certified animals?
- Big flocks in pastoral areas might need different strategy
- How to assure health of females to stop infection of certified breeding rams?

Meeting agenda

Guidelines for certification of improved rams from community-based breeding programs

16 November 2017

ILRI campus Addis Ababa

09:00 – 09:30 Welcome, introductory remarks and self-introduction (AH)

09:30 – 10:00 Working groups (2) understanding and elements of certification

10:00 – 10:15 Working groups reporting

10.15 – 10:45 Production itinerary and selection process of improved rams (AH)

Technical requirements for certification (MR)

10:45 – 11:15 Coffee break

11:15 – 11:45 Specific opinions by ILRI – NAIC – Animal Health Services (MOA) – Animal Production Services (MOA)

11:45 – 12:45 General discussion

- Certification levels
- Who is in charge of the technical certification requirements
- Data collection and flow of information
- Institutional framework for improved rams' certification in the context of Ethiopia
- Legal considerations

12:45 – 13:00 Wrap-up, steps forward and closure

13:00 – 14:00 Lunch

List of participants

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Ser. No	Name	Affiliation
1	Ayele Abebe	Debre Berhan Agricultural Research Center
2	Dagne Muluneh	Ministry of Livestock and Fishery
3	Barbara Wieland	ILRI
4	Gezahegn Alemayehu	ILRI
5	Besufekad Jufar	National Artificial Insemination Center
6	Mourad Rekik	ICARDA
7	Barbara Rischkowsky	ICARDA
8	Aynalem Haile	ICARDA
9	Tesfaye Getachew	ICARDA
10	Getachew Jember	Veterinarian, Ministry of Livestock and Fishery