

STANDARD OPERATING PROCEDURES FOR BREEDING BULLS SELECTION AND MANAGEMENT

Authorized: DG, DLS

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Revision history

Updates on this SOP will be made by re-issuing the relevant section of this

Revision history

S.N.	Effective Date	Description		Section/Clause involved	Page no.	Amendment	
		Changes	Original			Made by (Name)	Approved by (Name)
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1							
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Background

Breeding bulls selected by Frozen Semen Station (FSS) are considered highly valuable units of semen production. Good management practices are essential for maximizing use of the selected bull. The breeding bull is expected to produce large number of frozen semen doses of good quality which will result in optimum pregnancy rate in the field. The number of doses produced per bull per year depends on breed, size and age of the bull.

Objectives

To select and manage breeding bulls for producing good quality of semen

Requirements

- Pedigree Records
- Balance Ration
- Housing Requirement
- Health Measures

Procedure

I. Selection Criteria

Breeding Bulls for frozen semen production shall be selected based on

- Government approved PPRS guidelines
- Pedigree Records (Annex 1)
- Phenotypical characters (Annex 2)
- Libido Index and Sexual Behavior (Annex 3)
- Estimated Breeding Value of Pedigree and Progeny Testing

II. Management

Bull management comprises of following:

1. Feeding of adequate fodder and feed

- The bulls being ruminants require fodder of good quality and in adequate quantity for their maintenance.
- It is estimated that a developing bull requires 2.5 – 3.0 % of body weight as dry matter per day and 1.0-1.2% crude protein with 65% TDN.
- Yearling bull need dry matter 2.0 to 3.0% of the body weight per day
- Adult bull dry matter intake is 1.2 to 1.4% of body weight per day.
- Feeding of maize / oat silage in limited quantity of 5-10 Kg. / day / bull is harmless.
- Wherever silage is prepared, adequate precautions should be taken to avoid growth of molds and aerobic condition.
- About 3 to 5 kg of concentrate/bull according to body weight should be provided every day.
- It is preferable to avoid feeding of cotton seed cake to bulls.

2. Feeding of Mineral mixture

- Supplementary feeding of 50 to 150 grams of mineral mixture / day / bull is essential to meet the physiological requirements.
- The ingredients of the mineral mixture should be free from animal origin.
- Salt in the range of 10 – 15 g / day / bull can be added to the mineral mixture.
- The Multivitamins, Phosphorus and Selenium injection should be provided in every 15 days interval regularly for better quality semen production.

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3. Supply of potable water at all the time

- Adlib fresh water should be given throughout the day.
- The water should be clean, free from organic matter and potable

4. Housing and floor

- All housing facilities should have arrangements for feeding and supply of water.
- The sheds should be in East–West direction to avoid direct sunlight on bulls.
- There should be top ventilation to allow escape of hot air.
- There should be provision of water foggers and fans for use during the summer particularly for exotic breeds and buffalo bulls.
- The fans and water foggers should be operated alternately for about 4–5 hours/day during summer time.
- Each bull should have adequate covered area (minimum 10M²).
- The flooring of covered area should be non-slippery cement concrete with adequate grooves.
- The floors should be scrubbed and burnt at least once in a year by blowlamp.

5. Basic Management of the animals

- During summer, it is desirable to wash the buffalo bulls twice a day.
- It is recommended to groom the cattle bulls with coir/nylon brush every day to keep the skin in shining and glowing condition.
- All the bulls shall be groomed at least once a day- which helps maintain good health of the bulls and keep their coats clean.
- Grooming of animals every day, minimum 10 minutes per animal is essential for production of good quality of semen.
- It is preferable to exercise the bulls for about a minimum of 30 minutes per day. During the exercise, it would be possible to observe the gait and note any lameness / foot problems.
- Deworming is done once in 6 months or as required. Regular fecal examination will determine the frequency of deworming.
- Hooves of bulls are examined every fortnight and trimmed every three months or as needed. Foot bath is given to all the breeding bulls with 4% formalin or 4% copper sulphate solution.
- Preputial hair clipping of adult bulls should be carried out fortnightly. The length of the hair at the preputial orifice should be cut leaving at about 2 cm to prevent bacterial load in the preputial orifice.
- The body weight at the time of semen collection should have the standard body weight. All bulls should be weighed every month.
- Sick animals are segregated from the normal stock in isolation shed and separate feeding and watering should be provided.
- All newly introduced should be kept on Quarantine for 21 days, during this period collect the sample for disease screening and conduct tests against major contagious diseases.

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- Bull should be culled to ensure semen quality and to reduce feed and other expenditures on the following basis
 - The bulls with poor libido
 - Poor serving ability
 - Poor semen quality (Based on Motility, Viability, Concentration etc.)
 - Poor freezability
 - Positive for Brucellosis and Tuberculosis on screening test
 - Old age over 9 years for cattle bulls and 10 years for buffalo bulls

6. Health Management of Bulls

- It is recommended to minimize the number of vaccinations each year using combination vaccines like HS & BQ. In case of FMD, it is preferable to use oil adjuvant vaccine.
- After any vaccination rest the bulls for collection at least two consecutive collections to reduce febrile reaction in spermatogenesis and thereby quality of semen.
- Vaccinations have to be carried out against contagious diseases in bull station as well as vaccination of animals in the surroundings covering 2 kilometers radius of FSS.
- The breeding bulls should be screened every year with the collaboration of disease diagnostic laboratories for Brucellosis, TB, Leptospirosis, Campylobacter, BVD, JD and Trichomoniasis as per OIE guidelines/Kit guidelines. (Annex 4)

7. Recording

All the records regarding the selection and management of breeding Bull should be kept up to date.

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ANNEXES

Annex 1 Pedigree selection

It is based on

Breed	Dam's milk Production/lactation (Under PPRS)
Jersey	Minimum of 4500 liters
Holstein	Minimum of 6000 liters
Murrah	Minimum of 3000 liters

Annex 2 Phenotypical Selection

Before procuring new bull calves/bulls for a semen station, a thorough phenotypic examination shall be conducted by an accredited Official / Veterinarian to ensure that the bulls are free from abnormality and do not display clinical symptom(s) of any infection or any contagious diseases. Standards for scrotal circumference and weight gain index for various breeds shall be fixed by initiating age wise recording of scrotal circumference once in three months and body weight once a month, by the semen stations. For every new calf procured, the measurement of scrotal circumference and body weight should be initiated immediately. Prior to introduction of new bulls for semen collection, breeding soundness examination shall also be carried out. It should be done on the following basis;

- Physical examination by experts.
- Characteristics of the breeds.
- Gentle gait, equally distributed limbs.
- No deformities in hooves.
- Both testicles should be descended.
- Scrotal circumference should be 30 cm at the time of collection (Annex)
- Animal should weigh according to prescribed standards to age. (Annex)
- No umbilical hernia.
- No pendulous sheath.
- No warts.
- No bad vices like masturbation

Annex 3 Libido Index and Sexual Behavior

Normal patterns of bull's sexual behavior

1. Sexual arousal.
2. Courtship: Guarding, chin resting, sniffing, licking, nuzzling, frontal contact etc.
3. Erection of penis and penile protrusion.
4. Mounting.
5. Seeking for vulva (location)
6. Ejaculatory thrust.
7. Ejaculation.
8. Dismounting.

Variations in patterns of sexual behavior (From full to no expression of sexual behaviour)

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1. Complete service with ejaculation.
2. Mounts with erect penis but without thrust.
3. Mounts with non-erect penis.
4. Refusal to mount.

Libido index

1. Intense libido: reaction time up to 3 minutes.
2. Normal libido: reaction time from 3 to 10 minutes.
3. Poor libido: reaction time more than 10 minutes. (Treatment should be done)

Annex 4 Screening of diseases

The breeding bulls should be screened every year with the collaboration of disease diagnostic laboratories for Brucellosis, TB, Leptospirosis, Campylobacter, BVD, JD and Trichomoniasis as per OIE guidelines. All animals are tested against the major contagious diseases as follows;

Screening Diseases	Bulls	Semen doses
FMD	Retain	Last one month's doses to be discarded
Brucellosis	Castrate and remove within 48 hours	FS doses in stock to be discarded since the last negative test
Tuberculosis (TB)	Remove within 48 hours	FS doses in stock to be discarded since the last negative test
Campylobacteriosis	Treat and retain	FS doses in stock to be discarded since the last negative test
Trichomoniasis	Treat and retain	FS doses in stock to be discarded since the last negative test
Leptospirosis	Treat and retain	FS doses in stock to be discarded since the last negative test

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