

SEmen COLLECTION METHODS طرق جمع السائل المنوي

The semen collection method is regarded as the most important step in artificial insemination because the advantage of the bulls depends on this process and it's the successful and right way.

Methods of collection:

1. Collection from the vagina.
2. Massage of the ampulla.
3. Electro-ejaculator.
4. Artificial vagina.

Electro-ejaculator method

Product description:

The electro ejaculator consists of a rectal probe and a power control system that gives stepwise control over the applied voltage.



Figure 1 Electro ejaculator system

Application Electro ejaculation

It is useful for males with reduced libido or animals where semen collection with an artificial vagina is not possible such as in the case of rams, bulls, and bucks that are unable to jump. The probe is inserted into the rectum and placed above the prostatic

Male fertility and Artificial Insemination

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portion near the ejaculatory muscle. By a series of short low-voltage pulses (12 V extended power supply source), the ejaculation is started.

- For bulls two different probe sizes are available: diameter 5-6 cm; length: 33-40 cm.
- For rams one probe size is available: diameter 2.54 cm; length: 16 cm.
- For small animals, (dogs and cats) two different probe sizes are available: 0.95 - 1.27 cm; length: 6.35 cm.



Figure 2 Electro ejaculator for large animals



Figure 3 Mobile electro ejaculator with battery

Bad characteristics of electro ejaculator:

1. The ejaculate contains urine.
2. The bull becomes viscose due to this method.
3. It needs to sever training.
4. There is a danger to the bull and the collector.

Artificial vagina method

The artificial vagina is an instrument used for semen collection from the different types of animal's males.

Product description:

It is composed of:

1. External cylinder made of hard plastic (about 2-4 cm long, 6.5 cm in diameter). It has a valve near its end.
2. Another thin plastic tube opened of 2 sides, its length about (50-55 cm) and (7.5 cm) in diameter, put inside the outer cylinder. Their ends are fitted to the outside of the outer cylinder. Therefore, there will be a space between the two cylinders filled with hot water and air through the opening of the valve.
3. At the other end of the outer cylinder, there is a funnel-like structure made from thin plastic its external end fitted with a graduated tube to collect the semen.



Figure 4 Artificial vagina of bulls

The procedure of collection:

1. The space between the two tubes is filled to about $1\frac{1}{2}$ or $2\frac{1}{3}$ with hot water of 50°C in winter and 45°C in summer. This makes the internal temperature of the vagina about $40 - 42^{\circ}\text{C}$. Some bulls do not respond to an artificial vagina until its temperature reaches $40 - 48^{\circ}\text{C}$.
2. The end of the entrance of the penis must be lubricated for 15 cm by a thin layer of Vaseline using a glass rod.
3. Some air must be introduced through the valve to make suitable pressure resembling the natural vagina.
4. During collection, must use a cow in estrus, tied in a stanchion.
5. The artificial vagina must be held by right hand declined by an angle of 45° and when the bull is completely excited and jump to serve the collector must direct the penis toward the artificial vagina by catching the distal part of the prepuce of the bull by the left hand to introduce the penis into the artificial vagina.
6. The process must be done accurately and quickly, and the collector must be well trained and quickly moved to wear suitable for protecting clothes and standing on the right side of the bull.
7. After ejaculation, the artificial vagina is gently pulled and put in the vertical position to permit the semen to get into the collecting tubule, after opening the valve and let the water go outside. It is important to watch the bull after ejaculation until getting down after jumping.
8. The collecting yard should be very near to the laboratory of semen evaluation and preparation in order not to cause shock to spermatozoa leading to a decrease in the quality of the semen.

Some points should be taken into consideration before the collection:

1. The used bull should fast from eating a large amount of food and water before collection at about 12 hours.
2. Good control of the direction of the penis toward the vagina by handling from prepuce and don't attach the penis itself.
3. Fixed time of production and semen collection of each bull.

4. If the bull refuses to ejaculate due to a decrease in nervousness, it is better to postpone collection for a week after changing some of the environment.

Precautions should be taken before semen collection by artificial vagina:

1. Cleaning of abdomen by washing and drying as well as cut the hair of prepuce.
2. Never to catch the penis during collection to direct it toward the artificial vagina.
3. Using the suitable artificial vagina for each bull.
4. Good fixation of an inner sheet of the artificial vagina.
5. The collection tube must be kept carefully from light and cold or hot by put in a water path.

Bad characteristics of the artificial vagina:

1. When the temperature is raised above 48°C , a shock may occur to the bull and prevent to give ejaculate.
2. The low temperature of the artificial vagina causes the bull to become sexually cold.
3. The touch of semen with the internal wall of the artificial vagina may cause heat shock to the semen leading to a decrease in its viability.
4. Difficulty in cleaning and disinfection of parts of artificial vagina after each collection.

Semen collection needs to sexual arousal of the male, it is created by:

1. Sight and Touch
2. Sound.
3. Smell.
4. Live the best mount.
5. Alternative mount (dummies)