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Electric Am Electric Ram Semen Collection Process and the Factors Affecting Semen Quality

Caihong Hao

Branch of Animal Husbandry and Veterinary of Heilongjiang Academy of Agricultural Sciences, Qiqihar, Heilongjiang, China.

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Corresponding author: Caihong Hao, Branch of Animal Husbandry and Veterinary of Heilongjiang Academy of Agricultural Sciences, Qiqihar, Heilongjiang, China.

Abstract

With the rapid development of mutton sheep production, the sheep raising industry has changed from scattered, small-scale and traditional extensive management to intensive management. The type, scale and fine management of house feeding have all changed with the development of China in recent years. With the implementation of the reward mechanism of grassland ecological protection and the system of no grazing prohibition and grass and livestock balance, the traditional decentralized feeding mode is changing to house feeding and enterprise feeding. The industry business model has changed, and the artificial insemination technology of sheep has been affected again. It has caused the attention and application of large breeding enterprises. This problem has been solved in recent years.

Keywords

Artificial insemination, ram, electric stimulation, semen

Introduction

Artificial insemination can not only save the cost of buying and raising a large number of breeding sheep, but also give full play to the breeding value and breeding ability of a good ram. Therefore, efficiency is more and more valued by all countries around the world. The collection of ram semen is one of the important links of artificial insemination, commonly used. The false vaginal method was met with a bad-tempered and timid ewe. It is difficult to collect semen from goats that have not crawled or been trained. Moreover, due to the need of scientific research, the use of estrous ewes is very important. It is difficult to collect semen from the ram. Based on the above factors, it is urgent to use convenient and quick semen collection methods other than the pseudovaginal method. This problem has been solved in recent years [1].

1. Specific implementation methods of electric stimulation and sperm extraction technology for breeding ram.

1.1 Ram selection

The selected ram has normal reproductive function and strong physique, which is in line with sperm collection: 2 to 5 years old with good body, high energy and sexual desire in captivity should be fed twice a day, with enough grass, and supply carrots and fresh grass before picking for short-term aphroia.

1.2 Baoding breeding ram

The ram lies on the right, with broad cloth strips on the forelimbs and hind limbs. Tie them together with a long stick in the middle and fix the seeds by two people. The ram was trimmed and the hair around the mouth was cleaned with a wet

towel. Then wash and dry with normal saline.

1.3 Electrical stimulation

Pull the penis and gently wrap it with gauze strips to pull the penis in. Before collection, the instrument should be calibrated correctly, and the set cup should be used in a 37 ℃ hot water bath. When collection, the collector should wash the glans and foreskin of the ram. Before collection, the glass should be cleaned, washed with distilled water and sterilized with a pressure cooker. Add warm water at 36 degrees C to the bottom of the sperm collecting cup and place it into the incubator to collect sperm. Electrical stimulation extraction operation: the liquid paraffin evenly spread on the electrode, slowly into the rectum, the electrode inserted 20 cm into the rectum of the ram. As the stimulation intensity increases, the penis of the breeding ram expands, and the ejaculation is always at the moment of electricity supply, continuously stimulating or suddenly increasing the power level. And make the pole close to the rectum and abdomen, first adjust the voltage to zero, and then push the power switch, so that the voltage starts from 2V, every 10 seconds for 10 seconds, for one minute. The voltage was then raised to 4V, stimulated with the same intermittent method for a minute, and then gradually increased until the buck started ejaculation, that is, stopping the increase and using intermittent electrical stimulation until the ejaculation was finished. The sperm collector needs to concentrate on holding his breeding ram penis with his left hand. The foreskin shows the penis glans, the right hand holds the essence cup slightly up wrapped the glans for semen. From the beginning, after ejaculation, when under pressure, semen was quickly examined with cup concentrate, diluted 5 to 15 times with cryopdilution, and cryopreserved to collect 50 ml or 15 ml centrifuge tubes. Spread liquid paraffin evenly over the electrode rod. After insertion into the rectum, the metal portion of the electrode was kept close to the rectal wall and opened. Change the collection cup until the end of ejaculation. After insemination, return the knob to zero and pull out the rod. After the harvest is completed, after the harvest workers leave, bring the ram and let it move freely [2].

2. Instruments, equipment and reagents of breeding ram electric stimulation and sperm extraction technology.

Main instruments, reagents and consumables required for this technology: electric stimulation for semen collection precision instrument, scissors, liquid paraffin, normal saline, centrifuge tube.

Of the 3 suitable areas

This technology is widely used in all regions, all sheep and goats, sheep, etc.

3. Preventive measures

(1) Electrical stimulation should be carried out after sexual maturity of sheep.
(2) The time is arranged before feeding.
(3) The stimulus voltage and frequency are gradually increased from low to high.

4. Principle

The metal ring should be close to the bottom wall of the rectum.

The five rams had the best electrical stimulation and the best semen quality. As time goes on, the ram's strength decreases, so does the amount of semen and semen quality, so it is best to choose the beginning of the estrus season [3].

Semen was then frozen and artificially inseminated. Sm was collected by electrical stimulation and semen quality measured during the estrus season. The results of electrical stimulation were different from the results of a period of time, including preestrus (mid-late September). The highest success rate of sperm extraction is the highest, the lowest ejaculation voltage, 2 ~ 8v, large ejaculation, average 1.84 mL, fresh sperm motility 0.82, significantly higher than the end of estrus, terminal stage (P 0.05), low deformity rate, high acrosome integrity rate. Mid-estrus (early October) sperm motility was slightly lower than mid-estrus. In early estrus, the difference was not significant, while in late estrus (late October), the success rate of sperm extraction was very low, only 62.5%. The amount of ejaculate was reduced, and the quality of sperm motility was significantly lower than that in prophase and metaphus [4]. Through comparison, it was found that the quality of frozen semen collected in early and middle estrus was better than that in late estrus, with a significant difference in sperm motility. In the same estrus, over time, the ram consumes more physical energy, hormone levels also drop, and repeated electric shocks. Cultivation has a certain impact on the physical condition of the breeding ram, resulting in a decline in semen quality at the end of oestrus. Therefore, from mid-September to mid-October, good quality semen can be

obtained at the best extraction time, and the quality of frozen semen can still meet the standard of artificial insemination [5].

5. The semen quality identification method of meat sheep

5.1 Appearance assessment of the semen

The collected semen can first be evaluated in appearance to check its color and smell. Normal semen is milky white or light gray. Color (if it is red or yellow, it is an abnormal color, should be removed) slightly fishy, semen looks like a cloud from the outside, flying up and down. The amount of semen for each collection was determined and recorded.

5.2 Microscopic examination of the semen

Sinal microscopy of mutton sheep mainly includes sperm motility, sperm density, deformity rate and acrosome integrity rate. Sperm motility is the percentage of straight-moving sperm in semen to the total sperm count. Sperm motility was assessed by visual inspection and optical methods. Under the microscope it is usually used to estimate the percentage of sperm in a semen sample.

6. Preparation of cryoparticles and their effects on semen quality

6.1 Formula of fine liquid thinner

39 ml glucose, 1.49 ml citric acid, 100 ml distilled water; ideally liquid, 75 ml liquid, 20 ml egg yolk, glycerin 5 lnl, penicillin, streptomycin each 100,000 international units [6].

6.2 Effect of cryoparticles on semen quality

In the process of freezing of mutton sheep semen, the semen should be diluted with diluent liquid first. The dilutions is a protective agent for semen, especially semen. Important factors for freezing success. The diluent used for semen freezing should generally be composed of antifreeze protectors, cold shock substances, substances maintaining osmotic pressure, and antibacterial substances.

Antifreeze is a compound that protects cells and reduces cell damage from low temperatures, such as intracellular crystallization, dehydration, solute concentration, and denatured proteins. The presence of antifreeze protector can reduce the damage to cells by freezing, and glycerol is generally used as an antifreeze in the diluent of various frozen semen of livestock. Protective properties of glycerol and its concentration with glycerol in cells or binding with water. Glycerol also has a dilution effect that reduces the dissociation degree of the salts in the solution and the freezing solution. Permetic glycerol can penetrate into spermatids, hindering the formation and growth of condensed ice crystals. Egg yolk is a commonly used cold shock resistance in the diluent. The egg yolk contains the lecithin. After lecithin penetrates into sperm, it can replace acetal phospholiids, with high melting point and easy freezing temperature, hindering normal metabolism of ram sperm, causing irreversible and protein degeneration; but at low temperature, sperm metabolism is still normal and plays a protective role. Sperm survival. The protective effect of egg yolk on sperm can not only reduce the cold stimulation, but also prolong the survival time and increase of sperm [7].

The weak acidity of semen is beneficial to inhibit sperm activity and metabolism, but the semen is mixed with gonadal secretions during ejaculation. It is weakly alkaline, thus accelerating the sperm metabolism. The accumulation of lactic acid and carbonic acid produced during sperm metabolism causes acidic changes in semen pH to also affect semen quality. Therefore, an appropriate amount of buffer is added to the dilution to maintain the purity [8]. The pH value of the liquid is relatively constant. Citrate (salt) is the earliest buffer material used in the dilution agent, with good buffer properties. Trihydroxyomethane (THs), originally used as the main component of bovine frozen semen, is an alkaline buffer. The drug has a good buffering effect against sperm metabolic acidosis and has relatively low toxicity against sperm at high concentrations [9].

Sugar should be added to the diluent and its main function is to replace water molecules in hydrophilic tissues, while this function is.

It protects the cell membrane during dramatic temperature changes, and the effectiveness of the carbohydrate diluents is also changed by increasing the viscosity of the diluent, which prevents the formation of ice crystals and easily forms the vitreous body [10].

During semen collection, although strict operating procedures can reduce the contamination of semen and diluents, it is

difficult to achieve zero bacterial contamination. Because semen and diluent are nutrient-rich substances, is a suitable environment for microlife. Some bacteria or harmful microorganisms [11], during the process of semen preservation, may directly affect sperm motility, thus affecting the fertilization process and embryo development. The test results of bull semen samples show that each ml of semen usually contains tens of thousands of microns, ranging from tens of thousands to hundreds of millions. to this end [12].

It is needed to add the bacteria, which can act bacteriostatic on the one hand. On the other hand, it should be harmless to the sperm. Commonly used antibacterial substances are: penicillin, containing 500 or 1000 IU per ml of dilution: streptomycin. Each ml dilution contains 500 or 1000 IU. The use of penicillin and streptomycin has a more widespread antimicrobial effect.

7. Benefit analysis

This technique solves that the commonly used pseudovaginal method cannot do without collecting sperm. It is also solved that the ewe without heat is difficult to get the best. And a number of studies have shown that the breeding ram stimulates rapid ejaculation quality and vitality [13], and saves a lot of sperm extraction operations. The use of this technology can not only save the cost of buying and raising a large number of breeding sheep, but also maximize the use value of the excellent breeding ram, so that the breeding efficiency is significantly increased. Application of this technique in mutton sheep germplasm conservation and pure breed breeding. Meat sheep breeding and hybrid utilization also play an important role [14].

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