Male reproductive system

Evaluation of semen

The semen consist of 2 parts:

1.cellular part (sperm).

2.fluid part(seminal fluid) which is secreted from accessory glands (prostate gland, seminal vesicle and bulbo urethral gland).

The seminal fluid contain nutrient compound for sperm like carbohydrate especially fructose, proteins, fat, vitamins, electrolyte like Na, K, Ca.

The quality of semen affected by several factors:

1. disease: bacterial disease, viral disease, parasitical disease.
2. nutrition.
3. age.
4. mangment factor.

5.method of semen collection
6.procedure of handling during and after collection.
7.pharmcological and chemical agents effects.

Method of semen collection:

There are several method for collection of semen from domestic animal:

1.digital manipulation (D.M).

2.electro ejaculation probe (E.E)

3.artificial vagina (A.V)

Handling with semen:

The semen is very sensitive to environmental condition so:

1.keep the semen from heat.

2.dont exposure to chemical agent and distilled water .

3.dont exposure to air, sun light, rays.
4.dont shake the semen.
5.must keep the semen during collection and examination for quality in 37c.
6.keeping in 5c until time of freezing to prevent cool shock to sperm.

Some important characters of evaluation of semen in laboratory:

1.volume of ejaculation: its depend on health, environment condition (heat), nutrition type and method of collection:

spp	volume	Number of sperm/ml
bull	4ml	300.000-2000000
ram	1ml	2-5 million
stallion	70ml	30.000-800.000

2.color or appearance :

Thick, whitish to slightly yellowish fluid, the thickness of semen sample is a reflection of the number of the sperm present. There should be no odour associated with semen sample. Potential odour indicate that there is infection or presence of urine.

The problem can be also detected in color of semen as blood, urine and feces can cause pink or brownish color to semen. White clump or flaks indicate pus and presence of infection in reproductive tract of male.

3.acidity of semen:

The normal range of acidity in the newly collection semen is neutral but after awhile change to base because of accumulation of co2 as a result of sperm respiration and then sharp decrease in pH (more acidity) as a result of lactic acid accumulation from metabolism of fructose by hydrolysis in ram and bull but in stallion see the opposite after awhile the semen become more base (increase pH) as a result of metabolism of sperm and amount of carbohydrate.

4.microscopic examination of semen:

a.spermatozoal density ; measured by

1.hemocytometer:this method provide the veterinarian with accurate method for measuring the number of sperm.

Diluting fluid: composed from

-sodium bicarbonate 5gm

-formalin 1ml

-distilled water 100ml

Used RBC pipette (draw semen to mark 0.5 and complete by diluting fluid to mark101) ,four large corner square and central square, count only head.

Number of 5 square×2×200

2.absorbometer by using spermatozoa suspension, this technique is used in artificial insemination.

3.PCV ,10.000 rpm for 10 min in capillaries hematocrit tubes .

4.electronic cell counter.

b.spematozoal motility; the sperm motility either mass motility or individual motility.

1.percentage of motile → **less 50%weak**

→ **More50%motile**

2.type of motility → **progressive motion**

→ **Stationary (do not move).**

c.live or dead sperm, by using eosin stain

-eosin 2gm

-phosphate buffer pH 7.4 100ml

1.place one drop of stain on a slide.

2.add one drop of semen and mix.

3.but another slide on prepared slide causing it to spread between the slides.

4.draw the slides apart preparing another film on each slide.
5.dry on warm plate 40c.
6.examine with oil immersion objective.
Unstained sperm alive.
Stained sperm dead.

Morphology of stained sperm:

Abnormalities of spermatozoa:

1. coilled tail of spermatozoa.
2. pyriform head (the posterior part of the head is contracted).
3. swollon head.
4. double tail.
5. tailless.
6. Double head.