

**Abstract:**

This study was carried out at Agargof sheep improvement station, which belongs to the state board of agricultural research, Ministry of Agriculture, from a period of August / 2008 to June / 2009.

Seventy two ewes (Awassi Turkey and local Awassi breed) and 10 rams (Awassi×Turkey) were used to apply best the techniques of artificial insemination using diluted semen, depending on the fertility rates achieved, the cost and the easy of field application, as well as Rams evaluation and determine the best diluents could be used in the dilution of semen to be kept at refrigerator (5°C) for longest possible period, as well as possibility of screening and the accuracy of early pregnancy diagnosis in the sheep using sonar ultrasonic scanning.

**Evaluation of semen characteristics of Ram experiment:****Exp.No:1**

semen was collected from ram Twice / weekly/ for ram using artificial vagina to study some semen characteristics, Also studying the effect of using each of (Tris and IVT) diluents on the viability of sperm after dilution, The total number of ejaculates during the experimental reached (188) ejaculate with the mean of 19 ejaculate per Ram.

Result indicated that the over all mean of the volume of semen was  $1.12 \pm 0.37$ ml, while the percentage of the mass and individual sperm activity for all rams were  $77.97 \pm 1.79$  and  $79.26 \pm 1.34\%$  respectively Ram number (11995) recorded a highest mass and individual sperm activity ( $85.72 \pm 1.24$ ,  $85.83 \pm 1.22\%$  respectively, while ram number (12241) recorded the lowerest mass and individual motility of sperm  $68.94 \pm 1.40$  and  $74.73 \pm 1.96\%$  respectively. The over all of the sperm concentration in the ejaculate was  $4.0 \pm 0.38 \times 10^9$  sperm / ejaculate Ram no (12241) have been recorded a significantly ( $p < 0.05$ ) lowers dead sperm ( $3.34 \pm 0.08\%$ ), and the over all means of the dead sperm and abnormalities of percentage for all rams in the trial were  $6.73 \pm 1.20$ ,  $2.58 \pm 1.01\%$ . Also, data indicated that the Tris diluents have been recorded a significant, ( $p < 0.05$ ) individual motility for sperms which kept in the refrigerator (5°C) for about 12 hr in comparable of Illinois variable temperature (IVT) diluents.

## **Artificial insemination experiments:**

### **Experiment no: 2**

This experiment was done to compare the natural insemination and artificial insemination in the (vaginal, cervical and uterus through the cervix using the diluted semen with sperm concentration of  $(300, 250, 150 \times 10^6$  sperm per ejaculate respectively, Estrus synchronization was made for all the ewes in the experiment (38 ewes) using vaginal sponges impregnated with 40 mg of fluogesterone acetate for 11-12 days.

#### **The results showed the following:**

1. The lambing percentage in ewes of natural and artificial insemination in the vaginal and intrauterine were significantly ( $P < 0.05$ ) higher than those ewes in the cervical artificial insemination.
2. In spite of absence of significant differences in lambing percentage between the natural and artificial insemination in the vaginal and uterus, but there is a tendency for a higher percentage during the natural insemination (37.5, 30.7, 20 and 33.3% respectively).

### **Experiment no.: 3**

This Experiment was conducted to compare between the vaginal artificial insemination and natural insemination at estrus detection without any hormonal treatments. Thirty-four ewes (Awassi  $\times$  Turkey) were randomly according to age semen to two groups, group one (18 ewes) was artificially inseminated with diluted semen ( $300 \times 10^6$  sperm / dose) at estrus, while group 2 (16 ewes) was natural insemination at estrus cycle. Data revealed that pregnancy rate was significantly ( $p < 0.05$ ) different between natural and AI techniques (62.5 and 50% respectively).

#### **Pregnancy diagnosis:**

The accuracy of pregnancy diagnosis using ultrasonic scanning after 45 days of insemination for ewes in exp.2 and 3 were 91.6 and 100% respectively, while the accuracy of non- pregnant ewes were 96.1 and 100% for ewes in exp2 and 3 respectively.