



Tikrit University  
College of Veterinary Medicine

# Superovulation

Subject name: Reproductive  
techniques

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# Superovulation

**Superovulation:** is release of multiple eggs at the single estrus.

Cow or heifer can release as many as 10 or more ova and up to 5 normal transferable embryos

— **Advantages of superovulation:**

1. For embryo transfer programs
2. For estrus synchronization programs
3. Superovulation could shorten the generation interval by a year or more.
4. Increase animal population
5. Female reproductive soundness or tolerance
6. Economic reasons for the owners

— **Principles of superovulation:**

1. Stimulate extensive follicular development through the use of hormones preparation
2. Obtain maximum number of fertilized and transferable embryos with high probability of producing pregnancies

— **Hormonal methods: including use shoots alone/or during protocols of following hormone**

— **FSH, PMSG, hMG, eCG, PGF2 $\alpha$**

— **Some notes dealing with the times:**

1. Cow should be examined before starting the programs
2. Best time for superovulation between 9-14 days of estrus cycle.
3. ultrasonography is useful to monitoring advanced of follicular growth and size and number.

**Superovulation with FSH (FSH):**

— **Advantages of using FSH:**

- 1- Good quality and quantity of embryos producing.
- 2- Higher numbers of usable embryos.

— **Disadvantages of using FSH:**

- 1- Impure.
- 2- Frequently use with less than 5 percent of half-life.
- 3- Short half-life.
- 4- laborious.
- 5- Some time produce antibodies in the body.

— **Superovulation with PMSG ( eCG):**

— **Advantages of PMSG:**

- 1- Easy, long half life
- 2- Its associated with over stimulation in the ovaries hence production large number follicles and ovulation

— 3- Only single injection required

— **Disadvantage:**

— 1- Very high progesterone level

— 2- Large ovary sequel

— 3- Non ovulatory follicle producing estrogen due to its long half life

— 4- Ovum abnormalities transport

— **Factors affecting superovulation response:**

— Physiological status of the animal

— 1- Age 2- Breed 3- Nutrition

— 4- Body condition 5- Hormonal preparation

— 6- Status of dominant follicle 7- Climate change

— 8- Using of additional hormone

— 9- Seasonal and duration time of treatment.

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