

THE BENEFITS OF FOLLICLE STIMULATING HORMONE (FSH) FOR OVUM PICK-UP (OPU) IN CATTLE

THE ROLE OF FSH FOR OPU

In females, FSH drives the growth and maturation of ovarian follicles by binding to specific FSH receptors (FSHr) located on granulosa cells. In the context of Ovum Pick-Up (OPU) for In-Vitro Embryo Production (IVEP), exogenous FSH—administered over several days before the procedure—stimulates the growth of multiple small antral follicles, increasing the pool and quality of oocytes that can be aspirated and later fertilized¹.

THE BENEFITS OF FSH ON EMBRYO NUMBERS AND QUALITY

A meta-analysis by Sarwar et al. (2020) reported that FSH treatment, when there is a progestin-priming, not only enhanced oocyte developmental competence but also promoted increased follicular transition, ultimately leading to a greater number of transferable embryos in *Bos taurus* cows¹. More specifically, data collected in 2019 and reported by the American Embryo Transfer Association showed that OPU without FSH yielded an average of 15.4 oocytes and 2.5 viable embryos per session, while the use of FSH increased the average to 19.9 oocytes and 6.2 viable embryos per OPU².



THE RETURN ON INVESTMENT (ROI) FROM THE USE OF FSH FOR OPU

Producing a greater number of transferable embryos with FSH can lead to increased profitability, as each high-quality embryo can command a higher market value.

Table simulating potential profit of OPU procedures with FSH, depending on the number of embryos obtained and their market value.

Embryo Value \$	Number of Embryos									FSH Cost
	1	2	3	4	5	6 <i>*Average with FSH</i>	7	8	9	
\$100	-\$200	-\$100	\$0	\$100	\$200	\$300	\$400	\$500	\$600	\$300
\$200	-\$100	\$100	\$300	\$500	\$700	\$900	\$1 100	\$1 300	\$1 500	\$300
\$300	\$0	\$300	\$600	\$900	\$1 200	\$1 500	\$1 800	\$2 100	\$2 400	\$300
\$400	\$100	\$500	\$900	\$1 300	\$1 700	\$2 100	\$2 500	\$2 900	\$3 300	\$300
\$500	\$200	\$700	\$1 200	\$1 700	\$2 200	\$2 700	\$3 200	\$3 700	\$4 200	\$300
\$600	\$300	\$900	\$1 500	\$2 100	\$2 700	\$3 300	\$3 900	\$4 500	\$5 100	\$300
\$700	\$400	\$1 100	\$1 800	\$2 500	\$3 200	\$3 900	\$4 600	\$5 300	\$6 000	\$300
\$800	\$500	\$1 300	\$2 100	\$2 900	\$3 700	\$4 500	\$5 300	\$6 100	\$6 900	\$300
\$900	\$600	\$1 500	\$2 400	\$3 300	\$4 200	\$5 100	\$6 000	\$6 900	\$7 800	\$300
\$1 000	\$700	\$1 700	\$2 700	\$3 700	\$4 700	\$5 700	\$6 700	\$7 700	\$8 700	\$300

*Average number of embryos produced per OPU using FSH as per 2020 Statistical Information Committee Report (2019 Data)²

KEY TAKEAWAYS

Research and data collection within the industry show that using FSH in OPU procedures increases both the quantity and quality of oocytes recovered, leading to higher embryo yields, improved embryo quality, and a greater return on investment compared to OPU without FSH.

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REFERENCES

1. Sarwar Z, et al. Meta-analysis to determine effects of treatment with FSH when there is progestin-priming on in vitro embryo production using ovum pick-up in Bos taurus cows. Anim Reprod Sci. 2020;221(106590).
2. American Embryo Transfer Association, 2020 Statistical Information Committee Report (2019 data), Daniela Demetrio (chair).

