

## Public Abstract

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Title:EFFECT OF OVULATORY FOLLICLE SIZE ON LUTEAL FUNCTION, PREGNANCY RATE, AND LATE EMBRYONIC/FETAL MORTALITY IN BEEF CATTLE

Previous reports indicate that ovulation of small dominant follicles resulted in reduced pregnancy rates compared to ovulation of large follicles in cattle. Similar reports of follicular determinants of pregnancy success have been reported in humans. The reason for the reduced pregnancy rates could be explained by ovulation of an incompetent oocyte or a compromised uterine environment unable to support a pregnancy. Therefore, a reciprocal embryo transfer approach was used to differentiate between oocyte competence and uterine environment factors that affect establishment of pregnancy following induced single ovulations of small or large follicles. Embryos from donor cows that ovulated various size follicles were transferred into recipient cows that ovulated various size follicles ( $n = 354$  transfers). The probability of recovering a fertilized and live embryo 7 d after breeding increased as the diameter of the ovulatory follicle increased ( $P = 0.01$ ). As ovulatory follicle diameter and serum concentrations of progesterone at embryo transfer (ET) increased in the recipient cow, the probability of pregnancy increased ( $P = 0.05$  and  $< 0.001$ , respectively); however, neither follicle size nor progesterone at ET in the donor cow was significant ( $P > 0.3$ ). In summary, ovulatory diameter at GnRH2 was positively associated with recovery of a live embryo (possibly indicating improved oocyte competence and [or] an early maternal environment that was more conducive to embryonic/fetal development in cows that ovulated a large follicle). Pregnancy establishment after embryo transfer (d 7) was related to the uterine environment established by the ovulatory follicle independent of oocyte quality.