

Public Abstract

First Name:Ky

Middle Name:Garrett

Last Name:Pohler

Adviser's First Name:Michael

Adviser's Last Name:Smith

Co-Adviser's First Name:

Co-Adviser's Last Name:

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Title:EFFECT OF OVULATORY FOLLICLE SIZE ON STEROIDOGENIC CAPACITY, MOLECULAR MARKERS OF OOCYTE COMPETENCE AND BOVINE PREGNANCY ASSOCIATED GLYCOPROTEINS IN BEEF COWS

Artificial insemination (AI) and estrus synchronization (ES) are effective tools for the genetic advancement of cattle. Gonadotropin-releasing hormone (GnRH) is used at the beginning of ES protocols to induce ovulation and start a new follicular wave, and(or) at the end of the protocol to induce ovulation in combination with insemination. However, GnRH-induced ovulation of a small follicle at AI negatively affected pregnancy rates in beef heifers and postpartum cows and increased late embryonic mortality. Therefore, two studies were conducted to determine the effect of ovulatory follicle size on oocyte competence (experiment 1) and placental function (experiment 2 - 4). The aim of experiment 1 was to examine the relationship between ovulatory follicle size and markers of oocyte competence. Ovulatory follicle diameter was positively associated with serum and intrafollicular estradiol; however, the relationship between ovulatory follicle size and markers of oocyte competence was not conclusive. The objective of experiments 2 to 4 was to examine the association between ovulatory follicle size, embryo/fetal survival and circulating concentrations of bovine pregnancy associated glycoproteins (bPAGs), which served as a marker of placental function. The pattern of secretion of bPAGs in serum, early in gestation, was not affected by ovulatory follicle size; however cows that maintained pregnancy during early gestation had increase concentrations of bPAGs on d 28 of pregnancy compared to cows that exhibited late embryonic/fetal mortality after d 28.