Effect of Dose of GnRH Used in the Ovsynch System on AI Pregnancy Rates in Beef Cows

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Introduction

Estrous synchronization advances have the potential to dramatically increase the utilization of artificial insemination (AI) in beef cattle operations. Ultimately, the level of usefulness of these programs and AI in general will be the cost effectiveness of programs which are developed. Programs involving the use of GnRH and prostaglandins have been reported that allow for acceptable pregnancy rates using timed insemination and thus dramatically reducing handling, a significant deterrent to AI in beef cattle. One such scheme, Ovsynch, has utilized 100mg of GnRH for each of two injections in the scheme. Research conducted with dairy cattle has suggested that 50 mg GnRH provides similar pregnancy rate outcomes. Beef cow reproduction is significantly different than dairy reproduction due to different body composition, lactational demands and typical nutritional provision. If a lower dose of GnRH produces similar pregnancy outcomes, a significant economic advantage to the program would result. This trial was designed to compare the outcome of the four different combinations of 50 mg and 100 mg of GnRH in Ovsynch protocols.

Materials and Methods

Eight hundred-sixty (860) cows from eight correctional center farms were synchronized by the Ovsynch method. This entailed an initial injection of GnRH followed in 7 d with 25 mg of prostaglandin. A second injection of GnRH was administered 48 hours later. The following dosages of GnRH (Cystorelin®) were utilized: 50 mg/50 mg, 50 mg/100 mg, 100 mg/50 mg, 100 mg/100 mg for initial and second GnRH injections, respectively. Treatments were blocked for days postpartum. Following the prostaglandin injection, estrous detection was performed twice daily. Tail paint was used as an aid to detection. Cows detected in estrus prior to the second GnRH injection were bred 12 h after estrus. All cows not detected in estrus were mass inseminated 14 to 18 h after the second GnRH treatment. All cows were examined via ultrasound for pregnancy between d 45 and d 75 post-insemination.

Results

Dose of GnRH did not affect synchronized pregnancy rates ($P > 0.5$). Considerable interaction occurred among location and dosage pattern of GnRH. Variability in AI pregnancy rate appeared to be diminished when the 100 mg dose of GnRH was used at the second injection. Dosage of GnRH at the initial injection did not alter the number of cows exhibiting estrus before timed AI. Pregnancy rate in cows bred early was not affected by the initial dose of GnRH. Pregnancy rates in cows bred by timed AI were similar to those in cows bred 12 h after detected estrus.

Conclusions

Using 50 mg of GnRH appears to be effective in an Ovsynch program for beef cattle.